

# stmtext class description

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v20191210

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December 10, 2019

`stmtext` is a wrapper documentclass around a selection of existing class layouts for L<sup>A</sup>T<sub>E</sub>X. 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  $\text{\LaTeX}$  user where this documentclass becomes insufficient. That's what's wanted. Maybe, until this point, the class has helped to bring some possibilities of  $\text{\LaTeX}$  closer.

The goal is to make  $\text{\LaTeX}$  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
<code>attachfile</code>	<code>false</code>	Load the <code>attachfile</code> package at the correct position relative to <code>stmhyperref</code>
<code>bibliography</code>	<code>false</code>	Load the <code>bibliography</code> package
<code>calc</code>	<code>false</code>	Load the <code>calc</code> package at the correct position relative to <code>stmtikz</code>
<code>cleverref</code>	<code>false</code>	Load the <code>cleverref</code> package at the correct position relative to <code>stmhyperref</code>
<code>color</code>	<code>true</code>	Load the <code>stmcolors</code> package
<code>conditionallox</code>	<code>true</code>	Load the <code>stmconditionallox</code> package

continued ...

...continued

Key	Default value	Description
<code>conditionalloxnewpage</code>	<code>true</code>	Set the value of the <code>newpage</code> option in the <code>stmconditionallox</code> package
<code>date</code>	<code>false</code>	Load the <code>stmdate</code> package
<code>glossaries</code>	<code>false</code>	Load the <code>stmglossaries</code> package
<code>index</code>	<code>false</code>	Load the <code>stmindex</code> package
<code>hyperref</code>	<code>true</code>	Load the <code>stmhyperref</code> package
<code>listings</code>	<code>false</code>	Load the <code>stmlistings</code> package
<code>math</code>	<code>false</code>	Load the <code>stmmath</code> package
<code>plots</code>	<code>false</code>	Load the <code>stmplots</code> package
<code>tabular</code>	<code>false</code>	Load the <code>stmtabular</code> package
<code>tikz</code>	<code>false</code>	Load the <code>stmtikz</code> package
<code>units</code>	<code>false</code>	Load the <code>stmunits</code> 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
<code>language</code>	<code>german <u>english</u></code>	Document language, Load the <code>stmlanguage</code> package with this option
<code>layout</code>	<code>standard dlr <u>koma</u></code>	Document layout
<code>type</code>	<code>article <u>report</u> book</code>	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
<code>institute</code>	<code><u>FA-STM</u></code>	See the <a href="#">RM-LaTeX</a> documentation for alternatives
<code>site</code>	<code><u>BS</u></code>	See the <a href="#">RM-LaTeX</a> 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 `conditionallo`

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

### 2.5. Option `glossaries`

Setting `glossaries=true` loads the `stm-glossaries`. 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  $\text{\LaTeX}$  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  
\printstmatrixglossary  
\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 an 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 `stmttext` 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,%  
    ...  
{stmttext}  
  
...  
  
% replace standard index  
\usepackage[  
    standard=false  
{stminindex}  
  
...  
  
% Must come after \makeindex, e.g. from stminindex  
\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 L<sup>A</sup>T<sub>E</sub>X class bundle (`article`, `report`, `book`), the KOMA-script bundle (`scrartcl`, `scrreprt`, `scrbook`) and the RM-L<sup>A</sup>T<sub>E</sub>X 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 not explicitly list in section 2.1 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

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## 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 % - Preamble:
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.
30 \NeedsTeXFormat{LaTeX2e}
31
32 % Provide the name of your page, the date it was last
33 % updated, and a comment about what it's used for
34 \ProvidesClass{stmtext}[2019/11/25 STM documentation class]
35
36 % -----
37 % Package
38 % -----
```

```

38 \@ifpackageloaded{kvoptions}{\RequirePackage{kvoptions}}%
39 \@ifpackageloaded{ifthen}{\RequirePackage{ifthen}}%
40
41 % -----
42 % Options base
43 % -----
44
45 \SetupKeyvalOptions{%
46   family=stmttextbase,%
47   prefix=stmttextbase@,%
48   setkeys=\kvsetkeys,%
49 }
50
51 % String options
52 \DeclareStringOption[report]{type}
53 \DeclareStringOption[koma]{layout}
54
55 % Process options
56 \ProcessKeyvalOptions{stmttextbase}
57
58 % -----
59 % Options
60 % -----
61
62 \SetupKeyvalOptions{%
63   family=stmttext,%
64   prefix=stmttext@,%
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]{tabular}

```

```

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

```

```

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

```

```

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

```

```

212 \equal{\stmttextbase@layout}{standard} \OR%
213 \equal{\stmttextbase@layout}{koma}%
214 }{%
215
216 % These commands are created to allow for an easy switch
    between
217 % dlrreprt and bootstrap_dlrreprt.
218
219 \@ifundefined{subject}{\def\subject#1{\gdef\
    @subject{#1} }%
220
    \def\@subject{}}{}%
221 \@ifundefined{keywords}{\def\keywords#1{\gdef\
    @keywords{#1} }%
222
    \def\@keywords{}}{}
223 \@ifundefined{restrictions}{\def\restrictions#1{\gdef\
    @restrictions{#1} }%
224
    \def\@restrictions{}}{}
225 \@ifundefined{author}{\def\author#1{\gdef\@author
    {#1} }%
226
    \def\@author{}}{}
227 \@ifundefined{coauthor}{\def\coauthor#1{\gdef\
    @coauthor{#1} }%
228
    \def\@coauthor{}}{}
229 \@ifundefined{savedby}{\def\savedby#1{\gdef\
    @savedby{#1} }%
230
    \def\@savedby{}}{}
231 \@ifundefined{approvedby}{\def\approvedby#1{\gdef\
    @approvedby{#1} }%
232
    \def\@approvedby{}}{}
233 \@ifundefined{releasedby}{\def\releasedby#1{\gdef\
    @releasedby{#1} }%
234
    \def\@releasedby{}}{}
235 \@ifundefined{contactname}{\def\contactname#1{\gdef\
    @contactname{#1} }%
236
    \def\@contactname{}}{}
237 \@ifundefined{telnumber}{\def\telnumber#1{\gdef\
    @telnumber{#1} }%
238
    \def\@telnumber{}}{}
239 \@ifundefined{faxnumber}{\def\faxnumber#1{\gdef\
    @faxnumber{#1} }%
240
    \def\@faxnumber{}}{}
241 \@ifundefined{email}{\def\email#1{\gdef\@email
    {#1} }%
242
    \def\@email{}}{}

```

```

243 \ifundefined{reportno}{\def\reportno#1{\gdef\
    @reportno{#1} }%
244 \def\@reportno{}}{}
245
246 % From dlrinstitutes.sty
247 \ifundefined{institute}{\def\institute#1{\gdef\
    @institute{#1} }%
248 \def\@institute{}}{}
249 \ifundefined{site}{\def\site#1{\gdef\@site{#1}
    }%
250 \def\@site{}}{}
251
252 % The command for the second titlepage
253 \newcommand{\secondpage}{}%
254 }{
255
256 \RequirePackage{dlrsecondpage}
257
258 }
259
260 % -----
261 % Base packages
262 % -----
263
264 \ifstmttext@bibliography
265 \RequirePackage{stmbibliography}
266 \fi
267
268 \ifstmttext@color
269 \RequirePackage{stmcolors}
270 \fi
271
272 \ifstmttext@conditionallox
273 \RequirePackage[%
274 newpage={\ifstmttext@conditionalloxnewpage true\else
    false\fi},%
275 ]{stmconditionallox}
276 \fi
277
278 \ifstmttext@date
279 \RequirePackage{stmdate}
280 \fi
281
282 % This must be loaded ahead of tikz externalization

```

```

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

```



```

326 \RequirePackage{stmunits}
327 \fi
328
329 % -----
330 % Packages with dependencies
331 % -----
332
333 % -----
334 % Coseoul to get a level-independent document structure
335 % -----
336
337 \RequirePackage{coseoul}
338
339 \newcommand{\basetoclevelnr}[1]{#1}
340 \ifthenelse{\equal{\stmtextbase@type}{article}}{%
341   \renewcommand{\basetoclevelnr}{5}%
342 }{}%
343 \ifthenelse{\equal{\stmtextbase@type}{report}}{%
344   \renewcommand{\basetoclevelnr}{6}%
345 }{}%
346 \ifthenelse{\equal{\stmtextbase@type}{book}}{%
347   \renewcommand{\basetoclevelnr}{7}%
348 }{}%
349
350 \setcounter{currentlevel}{\basetoclevelnr}
351
352 % -----
353 % Commands dependent of the document base type
354 % -----
355
356 \ifthenelse{\equal{\stmtextbase@type}{article}}{%
357
358 }{}%
359 \ifthenelse{\equal{\stmtextbase@type}{report}}{%
360
361 }{}%
362 \ifthenelse{\equal{\stmtextbase@type}{book}}{%
363
364   % http://mirrors.ctan.org/macros/latex/contrib/biblatex/
365   % doc/biblatex.pdf#subsubsection.3.1.2
366   \ExecuteBibliographyOptions{%
367     refsection=part,% Individual bibliography for each part
368   }

```

```

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

```

```

413
414 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
415 % That's it %
416 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
417
418 % Finally, we'll use \endinput to indicate that LaTeX can
    stop reading this file. LaTeX will ignore anything after
    this line.
419 \endinput

```