

# The `latex-lab-title` package

## Changes related to the tagging of the title

L<sup>A</sup>T<sub>E</sub>X Project\*

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### Abstract

## 1 Introduction

This module contains changes to improve the tagging (in the standard classes) of the title created with the `\maketitle` command. It also improves the setting of the metadata related to the title and the author.

For basic tagging of the printed title there are basically three things to do:

- The actual title should be tagged with the `Title` tag.
- The tabular used to format the author list should *not* be tagged as a tabular.
- `\maketitle` redefines footnote internals. These must be made tagging aware.

A second task related to title is to store the authors and the title text (or a shorter version) inside the XMP-metadata and (in PDF 1.7 or lower) in the Info dictionary. Currently this can only be set if `hyperref` is loaded and requires the use of the `pdftitle` and `pdfauthor` keys. The new code therefore extends the `\title` and `\author` commands: They store their argument and use them at the end of the document for the PDF metadata if the data hasn't been given in another way. The code also gives `\title` and `\author` an optional argument where the PDF title or author can be given with in a key-value syntax. As with `hyperref` it is possible to store titles in more than one language:

```
\title
  [pdftitle =
    {[en]English Title,[de] Deutscher Titel,[fr]{titre français, avec comma}}]
  {Document title}
```

It is also possible to set a subtitle which is then stored in the XMP-metadata:

```
\title
  [pdfsubtitle =
    {[en]English Subtitle,[de] Deutscher Subtitel,[fr]{subtitre français, avec comma}}]
  {Document title}
```

---

\*Initial implementation done by Ulrike Fischer

If using the `pdfauthor` key authors should be separated by commas, and to hide commas in a name inside braces if needed:

```
\author[pdfauthor = {Bär, Peter Anteater, {Riley, the sloth}}]{\ldots}
```

If `hyperref` is loaded there is no difference to the `pdftitle` and `pdfauthor` key used in `\hypersetup`. Both can be used (and the last key used will win).

## 1.1 Open questions and TODOs

- Writing into the Info dictionary needs to convert the input into a PDF string. This is here done with a simple version of `hyperref`'s `\pdfstringdef`, similar code exist also in the generic `hyperref` driver. This should be moved into a better place module.
- Is it sensible to enhance `\author` and `\title` with an optional argument as done here? An advantage is that it is rather light-weight and doesn't require to decide how this values should be set in `\DocumentMetadata` (and would also work without `\DocumentMetadata`. But a problem could be that various classes and packages already extend this commands with other optional arguments.
- Some of the definitions related to metadata should perhaps be moved into `l3pdfmeta`.
- Are the names `pdftitle` and `pdfauthor` ok?
- The patch for `\thanks` to get a `rlap-footnotemarker` looks wrong. This probably means that some configuration option is missing in the footnote code.

## 2 Implementation

```
1 <*package>
2 <@=tag>
3 \ProvidesExplPackage {latex-lab-testphase-title} {\ltlabtitledate} {\ltlabtitleversion}
4 {Changes related to the tagging of the title}
```

### 2.1 `\maketitle` in article class

```
5 \cs_new_protected:Npn \__tag_patch_thanks:n #1
6 {
7   \rlap{\footnotemark}
8   \protected@xdef\@thanks{\@thanks
9     \protect\footnotetext [\the\c@footnote]{#1}}
10 }
```

The no-titlepage version of article, report and book

```
11 \cs_new_protected:Npn \__tag_patch_maketitle:
12 {
13   \par
14   \begingroup
```

Disable table tagging

```
15   \cs_if_exist_use:N\__tag_tbl_disable:
16   \renewcommand\thefootnote{\@fnsymbol\c@footnote}%
```

the original definition redefines \@makefnmark and \@makefnmark to get an rlap-mark in the text without affecting the mark in the note (which gives by the way a wrong link area with hyperref). There seem to be currently no good way in the footnote to configure this, so we redefine \thanks instead

```

17     \cs_set_eq:NN \thanks \__tag_patch_thanks:n
18     \if@twocolumn
19         \ifnum \col@number=\@ne
20             \@maketitle
21         \else
22             \twocolumn[\@maketitle]%
23         \fi
24     \else
25     \newpage
26     \global\@topnum\z@    % Prevents figures from going at top of page.
27     \@maketitle
28     \fi
29     \thispagestyle{plain}\@thanks
30 \endgroup
31 \setcounter{footnote}{0}%
32 \global\let\thanks\relax
33 \global\let\maketitle\relax
34 \global\let\@maketitle\relax
35 \global\let\@thanks\@empty
36 \global\let\@author\@empty
37 \global\let\@date\@empty
38 \global\let\@title\@empty
39 \global\let\title\relax
40 \global\let\author\relax
41 \global\let\date\relax
42 \global\let\and\relax
43 }

```

We must also change \@maketitle to insert a Title tag

```

44 \cs_new_protected:Npn \__tag_patch_@maketitle:
45 {
46     \newpage
47     \null
48     \vskip 2em%
49     \begin{center}%
50     \let \footnote \thanks

```

use Title around the title. As in PDF 1.7 this is rolemapped to P we change the text-unit tag there.

```

51     \pdf_version_compare:NnTF > {1.7}
52     {{\LARGE \tag_struct_begin:n{tag=Title}\@title \par\tag_struct_end:}}
53     {{\LARGE \tagtool{paratag=Title}\@title \par}}%
54     \vskip 1.5em%
55     {\large
56         \lineskip .5em%
57         \begin{tabular}[t]{c}%
58             \@author
59         \end{tabular}\par}%
60     \vskip 1em%
61     {\large \@date}%
62 \end{center}%

```

```

63 \par
64 \vskip 1.5em
65 }
66

```

The titlepage variant

```

67 \cs_new_protected:Npn \__tag_patch_maketitle_page:
68 {\begin{titlepage}%

```

disable table tagging

```

69 \cs_if_exist_use:N\__tag_tbl_disable:
70 \let\footnotesize\small
71 \let\footnoterule\relax
72 \let \footnote \thanks
73 \null\vfil
74 \vskip 60\p@

```

use Title around the title. As in PDF 1.7 this is rolemapped to P we change the text-unit tag there.

```

75 \begin{center}%
76 \pdf_version_compare:NnTF > {1.7}
77   {\LARGE \tag_struct_begin:n{tag=Title}\@title \par\tag_struct_end:}}
78   {\LARGE \tagtool{paratag=Title}\@title \par}}%
79 \vskip 3em%
80 {\large
81 \lineskip .75em%
82 \begin{tabular}[t]{c}%
83 \@author
84 \end{tabular}\par}%
85 \vskip 1.5em%
86 {\large \@date \par}% % Set date in \large size.
87 \end{center}\par
88 \@thanks
89 \vfil\null
90 \end{titlepage}%
91 \setcounter{footnote}{0}%
92 \global\let\thanks\relax
93 \global\let\maketitle\relax
94 \global\let\@thanks\@empty
95 \global\let\@author\@empty
96 \global\let\@date\@empty
97 \global\let\@title\@empty
98 \global\let\title\relax
99 \global\let\author\relax
100 \global\let\date\relax
101 \global\let\and\relax
102 }
103

```

Map the new commands onto \maketitle:

```

104 \AddToHook{class/article/after}
105 {
106 \if@titlepage
107 \cs_set_eq:NN \maketitle \__tag_patch_maketitle_page:
108 \else
109 \cs_set_eq:NN \maketitle \__tag_patch_maketitle:
110 \cs_set_eq:NN \@maketitle \__tag_patch_@maketitle:

```

```

111   \fi
112 }
113 \AddToHook{class/report/after}
114 {
115   \if@titlepage
116     \cs_set_eq:NN \maketitle \__tag_patch_maketitle_page:
117   \else
118     \cs_set_eq:NN \maketitle \__tag_patch_maketitle:
119     \cs_set_eq:NN \@maketitle \__tag_patch_@maketitle:
120   \fi
121 }
122 \AddToHook{class/book/after}
123 {
124   \if@titlepage
125     \cs_set_eq:NN \maketitle \__tag_patch_maketitle_page:
126   \else
127     \cs_set_eq:NN \maketitle \__tag_patch_maketitle:
128     \cs_set_eq:NN \@maketitle \__tag_patch_@maketitle:
129   \fi
130 }

```

## 2.2 Helper commands to set metadata

Some temp variables

```

131 \str_new:N \g__tag_title_tmpa_str
132 \str_new:N \l__tag_title_tmpa_str
133 \tl_new:N \l__tag_title_tmpa_tl
134 \seq_new:N \l__tag_title_tmpa_seq

```

Support for `\texorpdfstring`

```

135 \providecommand\texorpdfstring[2]{#1}%

```

A helper command to convert the title into a pdfstring similar to `\pdfstringdef`. As we use `\text_purify` we must ensure that the default definitions of `\@title` and `\@author` are robust:

```

136 \protected\def\@title{\@latex@error{No~\noexpand\title given}\@ehc}
137 \protected\def\@author{\@latex@warning@no@line{No~\noexpand\author given}}

```

TODO: This should be improved and moved into the pdf module so that it is generally available.

```

138 \cs_new_protected:Npn \__tag_title_pdfstring:nnN #1 #2 #3 % #1 text, #2 e.g. utf16/hex
139 {
140   \group_begin:

```

TODO: we need probably a common boolean to handle `\texorpdfstring` also without `hyperref`.

```

141   \cs_set_eq:NN\texorpdfstring\use_ii:nn
142   \str_set:Ne \l__tag_title_tmpa_str {\text_purify:n { #1 } }
143   \pdf_string_from_unicode:nVN { #2 } \l__tag_title_tmpa_str \l__tag_title_tmpa_str
144   \str_gset_eq:NN \g__tag_title_tmpa_str\l__tag_title_tmpa_str
145   \group_end:
146   \str_set_eq:NN #3 \g__tag_title_tmpa_str
147 }
148 \cs_generate_variant:Nn\__tag_title_pdfstring:nnN {e}

```

## 2.3 Extend title to set metadata

At first a variable to store the title, as `\@title` is emptied by L<sup>A</sup>T<sub>E</sub>X.

```
149 \tl_new:N \g__tag_title_title_tl
```

Now we redefine `\title` so that it stores the title, and processes keys in the optional argument. We use `hyp` as module name for the key as this means that if `hyperref` is loaded its definition of `pdftitle` will be used – at some time probably this should be moved out of `hyperref` so that we have only one definition.

```
150 \RenewDocumentCommand\title{0}{m}
151 {
152   \gdef\@title{#2}
153   \tl_gset_eq:NN\g__tag_title_title_tl\@title
154   \keys_set:nn {hyp}{#1}
155 }
```

Now we define the `pdftitle` key. This is more or less the same definition as in the generic `hyperref` driver.

```
156 \regex_new:N\l__tag_title_optlang_regex
157 \regex_set:Nn\l__tag_title_optlang_regex {\A\[[A-Za-z-]+\]\(.*)}
158 \cs_generate_variant:Nn \regex_extract_once:NnN{NVN}
159 \cs_generate_variant:Nn \clist_item:nn {on}
```

and now the keys.

```
160 \keys_define:nn { hyp }
161 {
162   pdftitle .code:n =
163   {
164     \tl_if_blank:nTF {#1}
165     {
166       \pdfmanagement_remove:nn {Info}{Title}
167     }
168     {
169       \tl_set:Nn\l__tag_title_tmpa_tl {\clist_item:on{#1}{1}}
170       \regex_extract_once:NVN
171         \l__tag_title_optlang_regex
172         \l__tag_title_tmpa_tl
173         \l__tag_title_tmpa_seq
174       \seq_if_empty:NTF\l__tag_title_tmpa_seq
175       {
176         \__tag_title_pdfstring:nnN {#1}{utf16/hex}\l__tag_title_tmpa_str
177       }
178       {
179         \__tag_title_pdfstring:enN
180           {\seq_item:Nn \l__tag_title_tmpa_seq{3}}{utf16/hex}\l__tag_title_tmpa_str
181       }
182       \str_if_eq:VnF\l__tag_title_tmpa_str{<FEFF>}
183       {
184         \pdfmanagement_add:nne {Info}{Title}{\l__tag_title_tmpa_str}
185       }
186     }
187     \AddToDocumentProperties[hyperref]{pdftitle}{#1}
188   }
189   ,pdfsubtitle .code:n = { \AddToDocumentProperties[hyperref]{pdfsubtitle}{#1} }
190 }
```

## 2.4 Extend `\author` to set metadata

At first a variable to store the authors, as `\@author` is emptied by L<sup>A</sup>T<sub>E</sub>X.

```
191 \tl_new:N \g__tag_title_author_tl
```

Now we redefine `\author` so that it stores the authors, and processes keys in the optional argument. We use `hyp` as module name for the key as this means that if `hyperref` is loaded its definition of `pdfauthor` will be used – at some time probably this should be moved out of `hyperref` so that we have only one definition.

```
192 \RenewDocumentCommand\author{0{m}}
193 {
194   \gdef\@author{#2}
195   \tl_gset_eq:NN\g__tag_title_author_tl\@author
196   \keys_set:nn {hyp}{#1}
197 }
```

Now we define the `pdfauthor` key. This is more or less the same definition as in the generic `hyperref` driver.

```
198 \keys_define:nn { hyp }
199   {
200     pdfauthor .code:n =
201       {
202         \tl_if_blank:nTF {#1}
203         {
204           \pdfmanagement_remove:nn {Info}{Author}
205         }
206         {
207           \tl_set:N\l__tag_title_tmpa_tl {\clist_item:on{#1}{1}}
208           \regex_extract_once:NVN
209             \l__tag_title_optlang_regex
210             \l__tag_title_tmpa_tl
211             \l__tag_title_tmpa_seq
212           \seq_if_empty:NTF\l__tag_title_tmpa_seq
213           {
214             \__tag_title_pdfstring:nnN {#1}{utf16/hex}\l__tag_title_tmpa_str
215           }
216           {
217             \__tag_title_pdfstring:enN
218               {\seq_item:Nn \l__tag_title_tmpa_seq{3}}{utf16/hex}\l__tag_title_tmpa_str
219           }
220           \str_if_eq:VnF\l__tag_title_tmpa_str{<FEFF>}
221           {
222             \pdfmanagement_add:nne {Info}{Author}{\l__tag_title_tmpa_str}
223           }
224         }
225         \AddToDocumentProperties[hyperref]{pdfauthor}{#1}
226       }
227   }
```

## 2.5 Fallback for classes and packages that redefine `\title` or `\author`

If a class redefines `\author` and `\title` again, we try to retrieve at least the values.

```

228 \AddToHook{cmd/maketitle/before}
229 {
230   \tl_gset_eq:NN \g__tag_title_author_tl \@author
231   \tl_gset_eq:NN \g__tag_title_title_tl \@title
232 }

```

## 2.6 Finalize document

At last we set the title and the author at the end of document if that hasn't happened yet:

```

233 \AddToHook{shipout/lastpage}
234 {
235   \tl_if_empty:eT{\GetDocumentProperties{hyperref/pdftitle}}
236   {
237     \group_begin:
238     \cs_set_eq:NN\thanks \use_none:n
239     \str_set:Ne \l__tag_title_tmpa_str {\text_purify:n { \g__tag_title_title_tl } }
240     \keys_set:ne{hyp}{pdftitle={\exp_not:V\l__tag_title_tmpa_str}}
241     \group_end:
242   }
243   \tl_if_empty:eT{\GetDocumentProperties{hyperref/pdfauthor}}
244   {
245     \group_begin:
246     \cs_set_eq:NN\thanks \use_none:n
247     \cs_set:Npn \and {,}
248     \str_set:Ne \l__tag_title_tmpa_str {\text_purify:n { \g__tag_title_author_tl } }
249     \keys_set:ne{hyp}{pdfauthor={\exp_not:V\l__tag_title_tmpa_str}}
250     \group_end:
251   }

```

force display title, if an UA-standard is detected.

```

252   \tl_if_empty:eF{\GetDocumentProperties{document/pdfstandard-UA}}
253   {
254     \pdfmanagement_add:nnn {Catalog / ViewerPreferences } { DisplayDocTitle } { true }
255   }
256 }
257 \DeclareHookRule{shipout/lastpage}{latex-lab-testphase-title}{before}{pdfmanagement-testphase}
258 \end{package}
259 \end{*latex-lab}
260 \ProvidesFile{title-latex-lab-testphase.ltx}
261   [\l_tlabtitledate\space v\l_tlabtitleversion\space
262   Changes related to the tagging of the title]
263
264 \RequirePackage{latex-lab-testphase-title}
265
266 \end{*latex-lab}

```