

# The `latex-lab-title` package

## Changes related to the tagging of the title

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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   \tagpdfsetup{table/tagging=false}%
16   \renewcommand\thefootnote{\@fnsymbol\c@footnote}%
```

the original definition redefines `\@makefnmark` and `\@makefntext` 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. We have here two options: We can surround the whole block with a `Title` or only the title text (but not both). As default the title text has the `Title` tag and the block is a `Part` (from the symbolic name `para/semantic`), but this can be changed by reassigning the symbolic name `title/block` and changing the plug of the tagging socket to the transparent plug, e.g.,

```

\AssignStructureRole{title/block}{Title}
\AssignTaggingSocketPlug{title}{transparent}
```

Note that in PDF 1.7 the `Title` tag is not a standard tag, it is a user defined and by default rolemapped to `P`. If `Title` should be used for the title block the rolemapping must be adjusted, e.g., to `Part` or `Sect`.

```

44 \AssignStructureRole{title/block}{\UseStructureName{para/semantic}}
45 \IfSocketExistsF{tagsupport/title}
46 {
47     \NewTaggingSocket{title}{2}
48 }
49 \NewTaggingSocketPlug{title}{kernel}
50 {
51     \pdf_version_compare:NnTF > {1.7}
52     {\tag_struct_begin:n{tag=\UseStructureName{title/text}}#2\tag_struct_end:}
53     {\AssignStructureRole{para/textblock}{\UseStructureName{title/text}}#2}%
54 }
```

```

55 \AssignTaggingSocketPlug{title}{kernel}
56 \cs_new_protected:Npn \__tag_patch_@maketitle:
57 {
58   \newpage
59   \null
60   \vskip 2em%
61   \begin{center}%
62     [tagging-suppress-paras=true,
63     tagging-recipe=standalone,
64     tag-name=\UseStructureName{title/block}]
65   \let \footnote \thanks

```

By default this socket adds Title around the title text. In PDF 1.7 Title is rolemapped to P and the socket adapts the para/textblock to avoid that we get an P inside a P. One can assign the transparent plug to the socket if Title should be used for the title block instead.

```

66   {\LARGE\UseTaggingSocket{title}{}\@title}\par}
67   \vskip 1.5em%
68   {\large
69     \lineskip .5em%
70     \begin{tabular}[t]{c}%
71       \@author
72     \end{tabular}\par}%
73   \vskip 1em%
74   {\large \@date}%
75   \end{center}%
76   \par
77   \vskip 1.5em
78   }
79

```

The titlepage variant:

```

80 \cs_new_protected:Npn \__tag_patch_maketitle_page:
81   {\begin{titlepage}%

```

disable table tagging

```

82   \tagpdfsetup{table/tagging=false}%
83   \let\footnotesize\small
84   \let\footnoterule\relax
85   \let \footnote \thanks
86   \null\vfil
87   \vskip 60\p@
88   \begin{center}%
89     [tagging-suppress-paras=true,
90     tagging-recipe=standalone,
91     tag-name=\UseStructureName{title/block}]

```

By default this socket adds Title around the title text. In PDF 1.7 Title is rolemapped to P and the socket adapts the para/textblock to avoid that we get an P inside a P. One can assign the transparent plug to the socket if Title should be used for the title block instead.

```

92   {\LARGE\UseTaggingSocket{title}{}\@title}\par}
93   \vskip 3em%
94   {\large

```

```

95     \lineskip .75em%
96     \begin{tabular}[t]{c}%
97         \@author
98     \end{tabular}\par}%
99     \vskip 1.5em%
100     {\large \@date \par}%           % Set date in \large size.
101 \end{center}\par
102 \@thanks
103 \vfil\null
104 \end{titlepage}%
105 \setcounter{footnote}{0}%
106 \global\let\thanks\relax
107 \global\let\maketitle\relax
108 \global\let\@thanks\@empty
109 \global\let\@author\@empty
110 \global\let\@date\@empty
111 \global\let\@title\@empty
112 \global\let\title\relax
113 \global\let\author\relax
114 \global\let\date\relax
115 \global\let\and\relax
116 }
117

```

Map the new commands onto \maketitle:

```

118 \AddToHook{class/article/after}
119 {
120     \if@titlepage
121         \cs_set_eq:NN \maketitle \__tag_patch_maketitle_page:
122     \else
123         \cs_set_eq:NN \maketitle \__tag_patch_maketitle:
124         \cs_set_eq:NN \@maketitle \__tag_patch_@maketitle:
125     \fi
126 }
127 \AddToHook{class/report/after}
128 {
129     \if@titlepage
130         \cs_set_eq:NN \maketitle \__tag_patch_maketitle_page:
131     \else
132         \cs_set_eq:NN \maketitle \__tag_patch_maketitle:
133         \cs_set_eq:NN \@maketitle \__tag_patch_@maketitle:
134     \fi
135 }
136 \AddToHook{class/book/after}
137 {
138     \if@titlepage
139         \cs_set_eq:NN \maketitle \__tag_patch_maketitle_page:
140     \else
141         \cs_set_eq:NN \maketitle \__tag_patch_maketitle:
142         \cs_set_eq:NN \@maketitle \__tag_patch_@maketitle:
143     \fi
144 }

```

## 2.2 Helper commands to set metadata

Some temp variables

```

145 \str_new:N \g__tag_title_tmpa_str
146 \str_new:N \l__tag_title_tmpa_str
147 \tl_new:N \l__tag_title_tmpa_tl
148 \seq_new:N \l__tag_title_tmpa_seq

```

We ensure that the default definitions of `\@title` and `\@author` are robust:

```

149 \protected\def\@title{\@latex@error{No~\noexpand\title given}\@ehc}
150 \protected\def\@author{\@latex@warning{no~\noexpand\author given}}

```

A helper command to convert the title into a pdfstring similar to `\pdfstringdef`.

```

151 \cs_new_protected:Npn \__tag_title_pdfstring:nnN #1 #2 #3 % #1 text, #2 e.g. utf16/hex
152 {
153   \group_begin:
154   \pdf_purify:nN {#1}\l__tag_title_tmpa_tl
155   \pdf_string_from_unicode:nVN { #2 } \l__tag_title_tmpa_tl \l__tag_title_tmpa_str
156   \str_gset_eq:NN \g__tag_title_tmpa_str\l__tag_title_tmpa_str
157   \group_end:
158   \str_set_eq:NN #3 \g__tag_title_tmpa_str
159 }
160 \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.

```

161 \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.

```

162 \RenewDocumentCommand\title{0{m}}
163 {
164   \gdef\@title{#2}
165   \tl_gset_eq:NN\g__tag_title_title_tl\@title
166   \keys_set:nn {hyp}{#1}
167 }

```

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

```

168 \regex_new:N\l__tag_title_optlang_regex
169 \regex_set:Nn\l__tag_title_optlang_regex {\A\[[A-Za-z-]+\]\ (.*)}
170 \cs_generate_variant:Nn \clist_item:nn {on}

```

and now the keys.

```

171 \keys_define:nn { hyp }
172 {
173   pdftitle .code:n =
174   {
175     \tl_if_blank:nTF {#1}
176     {
177       \pdfmanagement_remove:nn {Info}{Title}
178     }
179   }

```

```

179         {
180             \tl_set:N\l__tag_title_tmpa_tl {\clist_item:on{#1}{1}}
181             \regex_extract_once:NVN
182                 \l__tag_title_optlang_regex
183                 \l__tag_title_tmpa_tl
184                 \l__tag_title_tmpa_seq
185             \seq_if_empty:NTF\l__tag_title_tmpa_seq
186             {
187                 \__tag_title_pdfstring:nnN {#1}{utf16/hex}\l__tag_title_tmpa_str
188             }
189             {
190                 \__tag_title_pdfstring:enN
191                 {\seq_item:Nn \l__tag_title_tmpa_seq{3}}{utf16/hex}\l__tag_title_tmpa_str
192             }
193             \str_if_eq:VnF\l__tag_title_tmpa_str{<FEFF>}
194             {
195                 \pdfmanagement_add:nne {Info}{Title}{\l__tag_title_tmpa_str}
196             }
197         }
198         \AddToDocumentProperties[hyperref]{pdftitle}{#1}
199     }
200     ,pdfsubtitle .code:n = { \AddToDocumentProperties[hyperref]{pdfsubtitle}{#1} }
201 }

```

## 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.

```

202 \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.

```

203 \RenewDocumentCommand\author{0{ }m}
204 {
205     \gdef\@author{#2}
206     \tl_gset_eq:NN\g__tag_title_author_tl\@author
207     \keys_set:nn {hyp}{#1}
208 }

```

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

```

209 \keys_define:nn { hyp }
210 {
211     pdfauthor .code:n =
212     {
213         \tl_if_blank:nTF {#1}
214         {
215             \pdfmanagement_remove:nn {Info}{Author}
216         }
217         {
218             \tl_set:N\l__tag_title_tmpa_tl {\clist_item:on{#1}{1}}
219             \regex_extract_once:NVN

```

```

220         \l__tag_title_optlang_regex
221         \l__tag_title_tmpa_tl
222         \l__tag_title_tmpa_seq
223     \seq_if_empty:NTF\l__tag_title_tmpa_seq
224     {
225         \__tag_title_pdfstring:nnN {#1}{utf16/hex}\l__tag_title_tmpa_str
226     }
227     {
228         \__tag_title_pdfstring:enN
229             {\seq_item:Nn \l__tag_title_tmpa_seq{3}}{utf16/hex}\l__tag_title_tmpa_str
230     }
231     \str_if_eq:VnF\l__tag_title_tmpa_str{<FEFF>}
232     {
233         \pdfmanagement_add:nne {Info}{Author}{\l__tag_title_tmpa_str}
234     }
235 }
236 \AddToDocumentProperties[hyperref]{pdfauthor}{#1}
237 }
238 }

```

## 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.

```

239 \AddToHook{cmd/maketitle/before}
240 {
241     \tl_gset_eq:NN \g__tag_title_author_tl \@author
242     \tl_gset_eq:NN \g__tag_title_title_tl \@title
243 }

```

## 2.6 Finalize document

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

```

244 \AddToHook{shipout/lastpage}
245 {
246     \tl_if_empty:eT{\GetDocumentProperty{hyperref/pdftitle}}
247     {
248         \group_begin:
249         \cs_set_eq:NN\thanks \use_none:n
250         \str_set:Ne \l__tag_title_tmpa_str {\text_purify:n { \g__tag_title_title_tl } }
251         \keys_set:ne{hyp}{pdftitle={\exp_not:V\l__tag_title_tmpa_str}}
252         \group_end:
253     }
254     \tl_if_empty:eT{\GetDocumentProperty{hyperref/pdfauthor}}
255     {
256         \group_begin:
257         \cs_set_eq:NN\thanks \use_none:n
258         \cs_set:Npn \and {,}
259         \str_set:Ne \l__tag_title_tmpa_str {\text_purify:n { \g__tag_title_author_tl } }
260         \keys_set:ne{hyp}{pdfauthor={\exp_not:V\l__tag_title_tmpa_str}}
261         \group_end:
262     }

```



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

```
263   \tl_if_empty:xF{\GetDocumentProperty{document/pdfstandard-UA}}
264   {
265     \pdfmanagement_add:nnn {Catalog / ViewerPreferences } { DisplayDocTitle } { true }
266   }
267 }
268 \DeclareHookRule{shipout/lastpage}{latex-lab-testphase-title}{before}{pdfmanagement-testphase}
269 \end{package}
270 \end{*latex-lab}
271 \ProvidesFile{title-latex-lab-testphase.ltx}
272   [\l\tlabtitledate\space v\l\tlabtitleversion\space
273     Changes related to the tagging of the title]
274
275 \RequirePackage{latex-lab-testphase-title}
276
277 \end{*latex-lab}
```