

IDXCMDs

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create commands for adding formatted index entries

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English documentation

Contents

		3.2.2	<code>\newsubidxcmd</code>	4
		3.2.3	<code>\newsubmainidxcmd</code>	4
		3.3	Options	5
1	Licence and Requirements	1		
2	Motivation	1		
3	Usage	2		
	3.1 Available Commands	2		
	3.2 Command Usage	3		
	3.2.1 <code>\newidxcmd</code>	3		
		4	Implementation	5
			Index	10
			Example Index	11

1 Licence and Requirements

Permission is granted to copy, distribute and/or modify this software under the terms of the L^AT_EX Project Public License, version 1.3 or later (<http://www.latex-project.org/lppl.txt>). The package has the status “maintained.”

`IDXCMDs` loads and needs the the packages etoolbox¹ [Leh11] and pgfplots² [Wri11].

2 Motivation

When working on a larger document and designing and writing the macros for various bits and pieces I was going to use I found myself repeatedly writing the same kind of macros again and again that had some kind of semantic meaning, maybe some markup definitions that also created an index entry and had a star form for omitting the index entry. They all had more or less the following structure:

¹ CTAN: etoolbox ² CTAN: pgfplots

```

1 \makeatletter
2 \newcommand*\cmd{\@ifstar\cmd@star\cmd@nostar}
3 \newcommand*\cmd@star[1]{\cmd@base{#1}}
4 \newcommand*\cmd@nostar[1]{\cmd@base{#1}\cmd@idx{#1}}
5 \newcommand*\cmd@base[1]{\textit{#1}}
6 \newcommand*\cmd@idx[1]{\index{#1@\cmd@base{#1}}}
7 \makeatother

```

After having copied and pasted this code for the fourth time I thought: you should have a command that does this for you. That was when `\newidxcmd` was born. This command soon enough got some extensions, e.g., giving the commands thus defined an optional argument that allowed specifying the sorting. It wasn't long before I realized that I might want to use this `\newidxcmd` again in other documents which was when I wrote the first draft of this package.

I added other commands, `\newsubmainidxcmd` and `\newsubidxcmd`, which I didn't (and still don't) really use or need but of which I thought they could be useful for others, and here we are.

3 Usage

3.1 Available Commands

`IDXCMDS` provides these commands:

`\newidxcmd`[<index cs>]{\cmd}{<formatting specs>}[<app to idx entry>]

Defines a command `\cmd` that formats its argument according to <formatting specs> and creates an index entry with <index cs> that gets <app to idx entry> appended. Also defines a command `\cmdidx` that allows to only create an index entry. See section 3.2.1 for examples and further description of its functionality. Default for <index cs> is `\index`.

`\newsubidxcmd`*[<index cs>]{\cmd}{<main entry>}{<form. specs>}[<app to i. e.>]

Defines a command `\cmd` that formats its argument according to <form. specs> and creates an index sub-entry to <main entry> with <index cs> that gets <app to i. e.> appended. Also defines a command `\cmdidx` that allows to only create an index entry. See section 3.2.2 for further description of its functionality. Default for <index cs> is `\index`.

`\newsubmainidxcmd`[<index cs>]{\cmd}{<form. specs>}[<app to i. e.>]

Defines a command `\cmd` that formats its argument according to <form. specs> and creates an index sub-entry to a main entry with <index cs> that gets <app to i. e.> appended. Also defines a command `\cmdidx` that allows to only create an index entry. The main entry is specified at use time. See section 3.2.3 for examples and further description of its functionality. Default for <index cs> is `\index`.

The commands `\cmd` defined this way are robust but their formatting argument is not placed in a group. Keep this in mind when you use `\bfseries` or something in a definition. `\cmd`

will be defined using etoolbox' `\newrobustcmd` which means an error will be thrown if `\cmd` is already defined.

Of course these commands cannot cover all possible use cases for index entries but that is not the intention of this package, anyway.

3.2 Command Usage

3.2.1 `\newidxcmd`

The command `\newidxcmd{\cmd}{<formatting specs>}` will define a new command `\cmd` with the following syntax:

`\cmd*{<text>}`

format `<text>` according to specifications, no index entry.

`\cmd{<text>}`

format `<text>` according to specifications, add formatted index entry, sorted according to `<text>`.

`\cmd[<srt idx>]{<text>}`

format `<text>` according to specifications, add formatted index entry, sorted according to `<srt idx>`.

`\cmdidx[<srt idx>]{<text>}`

add formatted index entry, sorted according to `<srt idx>`.

Let's see an example:

```

1 % in the preamble, probably:
2 % \newidxcmd{\acr}{\textsc{#1}}
3 % \newidxcmd[{\index[examples]}]{\environ}{\texttt{#1}}[ (Environment)]
4 % \newidxcmd{\name}{\textsf{#1}}
5 \acr{cd}, \acr{id}
6
7 \environ{center}, \environ{flushleft}
8
9 \name*{Albert Einstein}, \name[Heisenberg]{Werner Heisenberg}

CD, ID
center, flushleft
Albert Einstein, Werner Heisenberg

```

You will find these examples in the index or the examples index, respectively. The second set of examples shows the purpose of the first optional argument: if you have several indexes – like this documentation has for demonstration purposes – you might need to specify the index command used.³ If you want to prove if the example worked: Albert Einstein should not be found in the index and Werner Heisenberg should be sorted under *Heisenberg*. Both `center` and `flushleft` should be found in the examples index.

³ This document uses `imakeidx [BG13]` for this purpose.

Now let's dissect the example a bit. The uses of `\acr{cd}`, `\name*{Albert Einstein}` and `\environ{center}` will essentially expand to

```

1 % \acr{cd} =>
2 \textsc{cd}\index{cd@\textsc{cd}}
3 % \name*{Albert Einstein} =>
4 \textsf{Albert Einstein}
5 % \environ{center} =>
6 \texttt{center}\index[examples]{center@\texttt{center} (Environment)}
```

3.2.2 \newsubidxcmd

The command `\newsubidxcmd*{\cmd}{<main entry>}{<form. specs>}` will define a new command `\cmd` with the same syntax as `\newidxcmd` does. However, `\newsubidxcmd` has an additional argument that specifies the main index entry this group of sub entries belongs to. For the unstarred variant this argument can be some arbitrary main entry. For the starred variant it demands a command plus argument defined by `\newidxcmd` as argument.

```

1 % preamble:
2 % \newsubidxcmd{\test}{Test}{\textcolor{red}{#1}}
3 % \newsubidxcmd*{\hsnbg}{\name[Heisenberg]{Werner Heisenberg}}{#1}
4 \name[Heisenberg]{Werner Heisenberg} was born in \hsnbg[Wuerzburg]{W\
   urzburg
5 (Germany)}. He worked as a professor in \hsnbg{Leipzig (Germany)}.
6 And this is a \test{test}.
```

Werner Heisenberg was born in Würzburg (Germany). He worked as a professor in Leipzig (Germany). And this is a **test**.

3.2.3 \newsubmainidxcmd

The command `\newsubmainidxcmd{\cmd}{<form. specs>}` will define a new command `\cmd` similar to `\newsubidxcmd` but where the main index entry is specified for every use case in the running text. `\cmd` will have the following syntax:

`\cmd*{<text>}`

format <text> according to specifications, no index entry.

`\cmd{<text>}{<main entry>}`

format <text> according to specifications, add formatted index sub-entry to the main index entry <main entry>, sorted according to <text>.

`\cmd[<srt idx>]{<text>}{<main entry>}`

format <text> according to specifications, add formatted index sub-entry to the main index entry <main entry>, sorted according to <srt idx>.

`\cmdidx[<srt idx>]{<text>}{<main entry>}`

add formatted index sub-entry to the main index entry <main entry>, sorted according to <srt idx>.

```

1 % in the preamble, probably:
2 % \newsbmainidxcmd{\file}{\textsf{#1}}
3 \file{article}{classes} is a standard \LaTeX{} class.
4 \file{scrartcl}{KOMA-Script@KOMAScript} is part of the \KOMAScript{}
  bundle.
5 \file*{test} is a dummy.

article is a standard LATEX class. scrartcl is part of the KOMA-Script bundle. test is a dummy.

```

3.3 Options

IDXCMDs has these option:

sort-sep = <symbol> Default: @
 set makeindex symbol to separate the index into sorting and typesetting part as specified in the index style file.

sub-sep = <symbol> Default: !
 set makeindex symbol to add a sub entry as specified in the index style file.

References

- [BG13] Claudio Beccari and Enrico Gregorio. imakeidx. Version 1.3, Mar. 26, 2013. URL: <http://mirror.ctan.org/macros/latex/contrib/imakeidx>.
- [Leh11] Philipp Lehman. etoolbox. Version 2.1, Jan. 21, 2011. URL: <http://mirror.ctan.org/macros/latex/contrib/etoolbox>.
- [Wri11] Joseph Wright. pgfopts. Version 2.1, June 2, 2011. URL: <http://mirror.ctan.org/macros/latex/contrib/pgfopts>.

4 Implementation

In the following code the lines 1–32 have been omitted. They only repeat the license statement which has already been mentioned in section 1.

```

33 \def\@idxcmds@date{2013/04/11}
34 \def\@idxcmds@version{v0.1a}
35 \def\@idxcmds@description{create commands for adding formatted index entries}
36
37 \ProvidesPackage{idxcmds}[\@idxcmds@date\space \@idxcmds@version\space
38   \@idxcmds@description\space (CN)]

```

4 Implementation

```

39 \RequirePackage{etoolbox,pgfopts}
40
41 % -----
42 % message handling:
43 \def\@idxcmds@create@message#1{%
44   \ifstrequal{#1}{Error}
45     {%
46       \lowercase{\csdef{\@idxcmds@#1}}##1##2{%
47         \csuse{Package#1}{bohr}{##1}{##2}}%
48     }{%
49       \lowercase{\csdef{\@idxcmds@#1}}##1{%
50         \csuse{Package#1}{bohr}{##1}}%
51     }}
52 \@idxcmds@create@message{Error}
53 \@idxcmds@create@message{Warning}
54 \@idxcmds@create@message{WarningNoLine}
55 \@idxcmds@create@message{Info}
56
57 % -----
58 % package options:
59 \def\@idxcmds@sortsep{@}
60 \def\@idxcmds@subsep{!}
61 \pgfkeys{
62   idxcmds/.cd,
63   sort-sep/.code = \def\@idxcmds@sortsep{#1} ,
64   sub-sep/.code  = \def\@idxcmds@subsep{#1}
65 }
66 \ProcessPgfOptions*
67
68 % -----
69 % a few helpers:
70 \def\@idxcmds@stripbs{\expandafter\@gobble\string}
71 \def\@idxcmds@csdef#1{\csdef{\@idxcmds@stripbs#1}}
72 \def\@idxcmds@csuse#1{\csuse{\@idxcmds@stripbs#1}}
73 \def\@idxcmds@appdef#1[#2]{\@idxcmds@csdef{#1@idx@app}{#2}}
74 \def\@idxcmds@newcommand{%
75   \@ifstar
76     {\@idxcmds@newcommand@star}
77     {\@idxcmds@newcommand@nostar}%
78 }
79 \def\@idxcmds@newcommand@nostar#1{%
80   \expandafter\newrobustcmd\csname\@idxcmds@stripbs#1\endcsname}
81 \def\@idxcmds@newcommand@star#1{%
82   \expandafter\newrobustcmd\expandafter*\csname\@idxcmds@stripbs#1\endcsname}
83
84 % -----
85 % \newidxcmd[<index cmd>]{<cs>}{<formatting specs>}[<app to idx entry>]
86 % new commands will have the syntax
87 %   \cmd*{<text>}           => no index entry

```

4 Implementation

```

88 % \cmd{<text>} => index entry
89 % \cmd[<sort idx>]{<text>} => alt. sort index
90 %
91
92 \newrobustcmd\newidxcmd[3][\index]{%
93   \@idxcmds@csdef{#2@base}##1{#3}%
94   \@idxcmds@csdef{#2@idx}##1##2{%
95     \ifblank{##1}
96       {%
97         #1{%
98           ##2\@idxcmds@sortsep
99           \@idxcmds@csuse{#2@base}{##2}%
100          \@idxcmds@csuse{#2@idx@app}%
101         }%
102       }
103     {%
104       #1{%
105         ##1\@idxcmds@sortsep
106         \@idxcmds@csuse{#2@base}{##2}%
107         \@idxcmds@csuse{#2@idx@app}%
108       }%
109     }%
110   }%
111   \@idxcmds@csdef{#2@star}##1{\@idxcmds@csuse{#2@base}{##1}}%
112   \@idxcmds@csdef{#2@nostar}{%
113     \@ifnextchar[%
114       {\@idxcmds@csuse{#2@nostar@opt}}
115       {\@idxcmds@csuse{#2@nostar@opt}[]}%
116   \@idxcmds@csdef{#2@nostar@opt}[##1]##2{%
117     \@idxcmds@csuse{#2@base}{##2}%
118     \@idxcmds@csuse{#2@idx}{##1}{##2}%
119   \newrobustcmd*#2{%
120     \@ifstar
121       {\@idxcmds@csuse{#2@star}}
122       {\@idxcmds@csuse{#2@nostar}}}%
123   \@idxcmds@newcommand*{#2idx}[2][\@idxcmds@csuse{#2@idx}{##1}{##2}]%
124   \@ifnextchar[%
125     {\@idxcmds@appdef{#2}}
126     {\@idxcmds@appdef{#2}[]}%
127 }
128
129 % -----
130 % \newsbmainidxcmd[<index cmd>]{<cs>}{<formatting specs>}[<app to idx entry>]
131 \newrobustcmd\newsbmainidxcmd[3][\index]{%
132   \@idxcmds@csdef{#2@base}##1{#3}%
133   \@idxcmds@csdef{#2@idx}##1##2##3{%
134     \ifblank{##1}
135       {%
136         #1{%

```

4 Implementation

```

137         ##3\@idxcmds@subsep##2\@idxcmds@sortsep
138         \@idxcmds@csuse{#2@base}{##2}%
139         \@idxcmds@csuse{#2@idx@app}%
140     }%
141 }{%
142     #1{%
143         ##3\@idxcmds@subsep##1\@idxcmds@sortsep
144         \@idxcmds@csuse{#2@base}{##2}%
145         \@idxcmds@csuse{#2@idx@app}}%
146     }%
147 }%
148 \@idxcmds@csdef{#2@star}##1{\@idxcmds@csuse{#2@base}{##1}}%
149 \@idxcmds@csdef{#2@nostar}{%
150     \@ifnextchar[%
151         {\@idxcmds@csuse{#2@nostar@opt}}
152         {\@idxcmds@csuse{#2@nostar@opt}[]}%
153     \@idxcmds@csdef{#2@nostar@opt}[##1]##2##3{%
154         \@idxcmds@csuse{#2@base}{##2}\@idxcmds@csuse{#2@idx}{##1}{##2}{##3}}%
155     \newrobustcmd*#2{%
156         \@ifstar
157         {\@idxcmds@csuse{#2@star}}
158         {\@idxcmds@csuse{#2@nostar}}}%
159     \@idxcmds@newcommand*{#2idx}[3][]{%
160         \@idxcmds@csuse{#2@idx}{##1}{##2}{##3}}%
161     \@ifnextchar[%
162         {\@idxcmds@appdef{#2}}
163         {\@idxcmds@appdef{#2}[]}%
164 }
165
166 % -----
167 % \newsubidxcmd[<index cmd>]{<cs>}{<idx cmd>}{<formatting specs>}[<app to idx
168 % \newsubidxcmd* [<index cmd>]{<cs>}{<main entry>}{<formatting specs>}[<app to
169 % \newif\if@idxcmds@sub@star
170
171 % get main if starred
172 \def\@idxcmds@extract@main#1#2{%
173     \@ifnextchar[%
174         {\@idxcmds@extract@main@aux{#1}{#2}}
175         {\@idxcmds@extract@main@aux{#1}{#2}[]}%
176     \def\@idxcmds@extract@main@aux#1#2[#3]#4{%
177         \@idxcmds@csdef{#1@main}{\@idxcmds@csuse{#2@base}{#4}}%
178         \ifstrempy{#3}
179         {\@idxcmds@csdef{#1@main@sort}{#4}}
180         {\@idxcmds@csdef{#1@main@sort}{#3}}}%
181
182 \newcommand*\newsubidxcmd{%
183     \@ifstar

```


4 Implementation

```
184     {\@idxcmds@sub@startrue\@idxcmds@subidx}
185     {\@idxcmds@sub@starfalse\@idxcmds@subidx}}
186 \newrobustcmd\@idxcmds@subidx[4][\index]{%
187   \@idxcmds@csdef{#2@base}##1{#4}%
188   \if@idxcmds@sub@star
189     \@idxcmds@extract@main#2#3%
190     \@idxcmds@csdef{#2@idx}##1##2{%
191       \ifblank{##1}
192         {%
193           #1{%
194             \@idxcmds@csuse{#2@main@sort}\@idxcmds@sortsep
195             \@idxcmds@csuse{#2@main}%
196             \@idxcmds@subsep##2\@idxcmds@sortsep
197             \@idxcmds@csuse{#2@base}{##2}%
198             \@idxcmds@csuse{#2@idx@app}%
199           }%
200         }{%
201           #1{%
202             \@idxcmds@csuse{#2@main@sort}\@idxcmds@sortsep
203             \@idxcmds@csuse{#2@main}%
204             \@idxcmds@subsep##1\@idxcmds@sortsep
205             \@idxcmds@csuse{#2@base}{##2}%
206             \@idxcmds@csuse{#2@idx@app}%
207           }%
208         }}%
209 \else
210   \@idxcmds@csdef{#2@idx}##1##2{%
211     \ifblank{##1}
212       {%
213         #1{%
214           #3%
215           \@idxcmds@subsep##2\@idxcmds@sortsep
216           \@idxcmds@csuse{#2@base}{##2}%
217           \@idxcmds@csuse{#2@idx@app}%
218         }%
219       }{%
220         #1{%
221           #3%
222           \@idxcmds@subsep##1\@idxcmds@sortsep
223           \@idxcmds@csuse{#2@base}{##2}%
224           \@idxcmds@csuse{#2@idx@app}%
225         }%
226       }}%
227 \fi
228 \@idxcmds@csdef{#2@star}##1{\@idxcmds@csuse{#2@base}{##1}}%
229 \@idxcmds@csdef{#2@nostar}{%
230   \@ifnextchar{%
231     {\@idxcmds@csuse{#2@nostar@opt}}
232     {\@idxcmds@csuse{#2@nostar@opt}[]}}%
```

```

233 \@idxcmds@csdef{#2@nostar@opt}{##1}##2{%
234 \@idxcmds@csuse{#2@base}{##2}\@idxcmds@csuse{#2@idx}{##1}{##2}}%
235 \newrobustcmd*#2{%
236 \@ifstar
237 {\@idxcmds@csuse{#2@star}}
238 {\@idxcmds@csuse{#2@nostar}}}%
239 \@idxcmds@newcommand*{#2idx}[2][]{%
240 \@idxcmds@csuse{#2@idx}{##1}{##2}}%
241 \@ifnextchar[%
242 {\@idxcmds@appdef{#2}}
243 {\@idxcmds@appdef{#2}[]}%
244 }
245
246 \endinput
247 % -----
248 % HISTORY:
249 2012/11/02 v0.1 - first working version
250 2013/04/11 v0.1a - made \newidxcmd, \newsubmainidxcmd and \newsubidxcmd robust

```

Index

This index has some peculiar entries in addition to the ones you would normally expect. But actually they are the corresponding entries to the examples shown in section 3.

C	Implementation 5	P
CD 3	\index 2	pgfopts 1, 5
classes		
article 5	K	
\cmd 3 f.	KOMA-Script	S
\cmdidx 3, 5	scartcl 5	sort-sep 5
		sub-sep 5
E	L	
etoolbox 1, 3	Licence 1	T
		Test
H	M	test 4
Werner Heisenberg 3 f.	Motivation 1 f.	
Leipzig (Germany) 4		
Würzburg (Germany) 4	N	U
	\newidxcmd 2 ff.	Usage 2–5
I	\newrobustcmd 3	Available Commands . . . 2
ID 3	\newsubidxcmd 2, 4	Command Usage 3
imakeidx 3, 5	\newsubmainidxcmd 2, 4	Options 5

Example Index

`center` (Environment), 3

`flushleft` (Environment), 3