

idxcmds

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create commands for adding formatted index entries

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English documentation

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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 `etoolbox`¹ [Leh11], `pgfopts`² [Wri11] and `ltxcmds`³ [Obe11].

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 on CTAN: `etoolbox` ² on CTAN: `pgfopts` ³ on CTAN: `ltxcmds`

```

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 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

`IDXCMS` provides these commands:

- ▶ `\newidxcmd[<index cs>]{\cmd}{<formatting specs>}[<append>]`
 Defines a command `\cmd` that formats its argument according to `<formatting specs>` and creates an index entry with `<index cs>` that gets `<append>` appended. Refer to the argument of `\cmd` in `<formatting specs>` with `#1`.
 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>}[<append>]`
 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 `<append>` appended. Refer to the argument of `\cmd` in `<form. specs>` with `#1`.
 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>}[<append>]`
 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 `<append>` appended. Refer to the argument of `\cmd` in `<form. specs>` with `#1`.
 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[<srt idx>]{<text>}[<app>]`
format `<text>` according to specifications, add formatted index entry, sorted according to `<srt idx>` or, if the optional argument is left out, sorted according to `<text>`. `<app>` is added to the index entry if the trailing optional argument is used (this can be useful for instance for getting formatted page numbers).
- ▶ `\cmdidx[<srt idx>]{<text>}[<app>]`
add formatted index entry, sorted according to `<srt idx>` or, if the optional argument is left out, sorted according to `<text>`. `<app>` is added to the index entry if the trailing optional argument is used.

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.⁴ 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.

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 % and in \jobname.idx =>
4 \indexentry{cd@\textsc {cd}}{3}
5
6 % \name*{Albert Einstein} =>
7 \textsf{Albert Einstein}
8
9 % \environ{center} =>
10 \texttt{center}\index[examples]{center@\texttt{center} (Environment)}
11 % and in examples.idx =>
12 \indexentry{center@\texttt {center} (Environment)}{3}

```

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
5 \hsnbg[Wuerzburg]{W"urzburg (Germany)}. He worked as a
6 professor in \hsnbg[Leipzig (Germany)]. And this is a
7 \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.

⁴ This document uses `imakeidx [BG13]` for this purpose.

- ▶ `\cmd[<srt idx>]{<text>}{<main entry>}[<app>]`
format `<text>` according to specifications, add formatted index sub-entry to the main index entry `<main entry>`, sorted according to `<srt idx>` or, if the optional argument is left out, sorted according to `<text>`. `<app>` is added to the index entry if the trailing optional argument is used (this can be useful for instance for getting formatted page numbers).
- ▶ `\cmdidx[<srt idx>]{<text>}{<main entry>}[<app>]`
add formatted index sub-entry to the main index entry `<main entry>`, sorted according to `<srt idx>` or, if the optional argument is left out, sorted according to `<text>`. `<app>` is added to the index entry if the trailing optional argument is used.

```

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

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

3.3 Options

`INDEXCMDS` has the following options – either settable as package option or with the setup command `\setindexcmds{<options>}` which takes a comma separated list of options:

- ▶ `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.
- ▶ `idx-cmd = <control sequence>` Default: `\index`
The default indexing command that is used by `INDEXCMDS`.

Introduced in
version 0.2b

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>.
- [Obe11] Heiko Oberdiek. `ltxcmds`. Version 1.22, Nov. 9, 2011. URL: <http://mirror.ctan.org/tex-archive/macros/latex/contrib/oberdiek/>.
- [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{2013/08/31}
34 \def\@idxcmds@version{v0.2b}
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)]
39 \RequirePackage{etoolbox,pgfopts,ltxcmds}
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}{idxcmds}{##1}{##2}}%
48     }{%
49       \lowercase{\csdef{@idxcmds@#1}##1{%
50         \csuse{Package#1}{idxcmds}{##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 \def\@idxcmds@default@index{\index}
62
63 \pgfkeys{
64   idxcmds/.cd,
65   sort-sep/.code = \def\@idxcmds@sortsep{#1} ,
66   sub-sep/.code  = \def\@idxcmds@subsep{#1} ,
67   idx-cmd/.code  = \def\@idxcmds@default@index{#1}
68 }
69 \ProcessPgfoptions*
70
71 \newrobustcmd*\setidxcmds[1]{\pgfkeys{/idxcmds}{#1}}
72
73 % -----
74 % a few helpers:
75 \def\@idxcmds@stripbs{\expandafter\@gobble\string}
76 \def\@idxcmds@csdef#1{\csdef{\@idxcmds@stripbs#1}}
77 \def\@idxcmds@csuse#1{\csuse{\@idxcmds@stripbs#1}}

```

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```
78 \def\@idxcmds@appdef#1[#2]{\@idxcmds@csdef{#1@idx@app}{#2}}
79 \def\@idxcmds@newcommand{%
80   \ifstar
81     {\@idxcmds@newcommand@star}
82     {\@idxcmds@newcommand@nostar}%
83 }
84 \def\@idxcmds@newcommand@nostar#1{%
85   \expandafter\newrobustcmd\csname\@idxcmds@stripbs#1\endcsname}
86 \def\@idxcmds@newcommand@star#1{%
87   \expandafter\newrobustcmd\expandafter*\csname\@idxcmds@stripbs#1\endcsname}
88
89 % -----
90 % \newidxcmd[<index cmd>]{<cs>}{<formatting specs>}[<app to idx entry>]
91 % new commands will have the syntax
92 %   \cmd*{<text>}           => no index entry
93 %   \cmd{<text>}           => index entry
94 %   \cmd[<sort idx>]{<text>} => alt. sort index
95 %
96
97 \newrobustcmd\newidxcmd[3][\@idxcmds@default@index]{%
98   \@idxcmds@csdef{#2@base}##1{#3}%
99   \@idxcmds@csdef{#2@idx}##1##2##3{%
100     \ifblank{##1}
101       {%
102         #1{%
103           ##2\@idxcmds@sortsep
104           \@idxcmds@csuse{#2@base}{##2}%
105           \@idxcmds@csuse{#2@idx@app}%
106           ##3%
107         }%
108       }
109     {%
110       #1{%
111         ##1\@idxcmds@sortsep
112         \@idxcmds@csuse{#2@base}{##2}%
113         \@idxcmds@csuse{#2@idx@app}%
114         ##3%
115       }%
116     }%
117   }%
118   \@idxcmds@csdef{#2@star}##1{\@idxcmds@csuse{#2@base}{##1}}%
119   \@idxcmds@csdef{#2@nostar}{%
120     \ltx@ifnextchar[%
121       {\@idxcmds@csuse{#2@nostar@opt}}
122       {\@idxcmds@csuse{#2@nostar@opt}[]}]%
123   \@idxcmds@csdef{#2@nostar@opt}[##1]##2{%
124     \@idxcmds@csuse{#2@base}{##2}%
125     \ltx@ifnextchar@nospace[%
126       {\@idxcmds@csuse{#2@idx@optarg}{##1}{##2}}
```

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```

127     {\@idxcmds@csuse{#2@idx}{##1}{##2}{}}}%
128 \@idxcmds@csdef{#2@idx@optarg}##1##2{##3}{%
129   \@idxcmds@csuse{#2@idx}{##1}{##2}{##3}}%
130 \newrobustcmd*#2{%
131   \ifstar
132     {\@idxcmds@csuse{#2@star}}
133     {\@idxcmds@csuse{#2@nostar}}}%
134 \@idxcmds@newcommand*{#2idx}[2][{%
135   \ltx@ifnextchar@nospace[
136     {\@idxcmds@csuse{#2@idx@optarg}{##1}{##2}}
137     {\@idxcmds@csuse{#2@idx}{##1}{##2}{}}}%
138   \ltx@ifnextchar[%
139     {\@idxcmds@appdef{#2}}
140     {\@idxcmds@appdef{#2}[]}]%
141 }
142
143 % -----
144 % \newsubmainidxcmd[<index cmd>]{<cs>}{<formatting specs>}[<app to idx entry>]
145 \newrobustcmd\newsubmainidxcmd[3][\@idxcmds@default@index]{%
146   \@idxcmds@csdef{#2@base}##1{##3}%
147   \@idxcmds@csdef{#2@idx}##1##2##3##4{%
148     \ifblank{##1}
149     {%
150       #1{%
151         ##3\@idxcmds@subsep##2\@idxcmds@sortsep
152         \@idxcmds@csuse{#2@base}{##2}%
153         \@idxcmds@csuse{#2@idx@app}%
154         ##4%
155       }%
156     }{%
157       #1{%
158         ##3\@idxcmds@subsep##1\@idxcmds@sortsep
159         \@idxcmds@csuse{#2@base}{##2}%
160         \@idxcmds@csuse{#2@idx@app}%
161         ##4%
162       }%
163     }%
164   }%
165   \@idxcmds@csdef{#2@star}##1{\@idxcmds@csuse{#2@base}{##1}}%
166   \@idxcmds@csdef{#2@nostar}{%
167     \ltx@ifnextchar[%
168       {\@idxcmds@csuse{#2@nostar@opt}}
169       {\@idxcmds@csuse{#2@nostar@opt}[]}]%
170   \@idxcmds@csdef{#2@nostar@opt}[##1]##2##3{%
171     \@idxcmds@csuse{#2@base}{##2}%
172     \ltx@ifnextchar@nospace[%
173       {\@idxcmds@csuse{#2@idx@optarg}{##1}{##2}{##3}}
174       {\@idxcmds@csuse{#2@idx}{##1}{##2}{##3}{}}}%
175   \@idxcmds@csdef{#2@idx@optarg}##1##2##3{##4}{%

```


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```

176     \@idxcmds@csuse{#2@idx}{##1}{##2}{##3}{##4}%
177 \newrobustcmd*#2{%
178     \@ifstar
179         {\@idxcmds@csuse{#2@star}}
180         {\@idxcmds@csuse{#2@nostar}}}%
181 \@idxcmds@newcommand*{#2idx}[3][]{%
182     \@idxcmds@csuse{#2@idx}{##1}{##2}{##3}%
183 \ltx@ifnextchar[%
184     {\@idxcmds@appdef{#2}}
185     {\@idxcmds@appdef{#2}[]}%
186 }
187
188 % -----
189 % \newsubidxcmd[<index cmd>]{<cs>}{<idx cmd>}{<formatting specs>}[<app to idx entry
190 >]
191 % \newsubidxcmd* [<index cmd>]{<cs>}{<main entry>}{<formatting specs>}[<app to idx
192 entry>]
193 \newif\if@idxcmds@sub@star
194
195 % get main if starred
196 \def\@idxcmds@extract@main#1#2{%
197     \ltx@ifnextchar[%
198         {\@idxcmds@extract@main@aux{#1}{#2}}
199         {\@idxcmds@extract@main@aux{#1}{#2}[]}]
200 \def\@idxcmds@extract@main@aux#1#2[#3]#4{%
201     \@idxcmds@csdef{#1@main}{\@idxcmds@csuse{#2@base}{#4}}%
202     \ifstrempy{#3}
203         {\@idxcmds@csdef{#1@main@sort}{#4}}
204         {\@idxcmds@csdef{#1@main@sort}{#3}}
205
206 \newcommand*\newsubidxcmd{%
207     \@ifstar
208         {\@idxcmds@sub@startrue\@idxcmds@subidx}
209         {\@idxcmds@sub@starfalse\@idxcmds@subidx}}
210 \newrobustcmd\@idxcmds@subidx[4][\@idxcmds@default@index]{%
211     \@idxcmds@csdef{#2@base}##1{#4}%
212     \if@idxcmds@sub@star
213         \@idxcmds@extract@main#2#3%
214         \@idxcmds@csdef{#2@idx}##1##2##3{%
215             \ifblank{##1}
216                 {%
217                     #1{%
218                         \@idxcmds@csuse{#2@main@sort}\@idxcmds@sortsep
219                         \@idxcmds@csuse{#2@main}%
220                         \@idxcmds@subsep##2\@idxcmds@sortsep
221                         \@idxcmds@csuse{#2@base}{##2}%
222                         \@idxcmds@csuse{#2@idx@app}%
223                         ##3%
224                     }%

```

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```

223     }{%
224     #1{%
225         \@idxcmds@csuse{#2@main@sort}\@idxcmds@sortsep
226         \@idxcmds@csuse{#2@main}%
227         \@idxcmds@subsep##1\@idxcmds@sortsep
228         \@idxcmds@csuse{#2@base}{##2}%
229         \@idxcmds@csuse{#2@idx@app}%
230         ##3%
231     }%
232 }}%
233 \else
234     \@idxcmds@csdef{#2@idx}##1##2##3{%
235     \ifblank{##1}
236     {%
237         #1{%
238             #3%
239             \@idxcmds@subsep##2\@idxcmds@sortsep
240             \@idxcmds@csuse{#2@base}{##2}%
241             \@idxcmds@csuse{#2@idx@app}%
242             ##3%
243         }%
244     }{%
245         #1{%
246             #3%
247             \@idxcmds@subsep##1\@idxcmds@sortsep
248             \@idxcmds@csuse{#2@base}{##2}%
249             \@idxcmds@csuse{#2@idx@app}%
250             ##3%
251         }%
252     }}%
253 \fi
254 \@idxcmds@csdef{#2@star}##1{\@idxcmds@csuse{#2@base}{##1}}%
255 \@idxcmds@csdef{#2@nostar}{%
256     \ltx@ifnextchar[%
257         {\@idxcmds@csuse{#2@nostar@opt}}
258         {\@idxcmds@csuse{#2@nostar@opt}[]}]%
259     \@idxcmds@csdef{#2@nostar@opt}[##1]##2{%
260         \@idxcmds@csuse{#2@base}{##2}%
261         \ltx@ifnextchar@nospace[%
262             {\@idxcmds@csuse{#2@idx@optarg}{##1}{##2}}
263             {\@idxcmds@csuse{#2@idx}{##1}{##2}{}}}%
264     \@idxcmds@csdef{#2@idx@optarg}##1##2[##3]{%
265         \@idxcmds@csuse{#2@idx}{##1}{##2}{##3}}%
266     \newrobustcmd*#2{%
267         \@ifstar
268             {\@idxcmds@csuse{#2@star}}
269             {\@idxcmds@csuse{#2@nostar}}}%
270     \@idxcmds@newcommand*{#2idx}[2][]{%
271         \@idxcmds@csuse{#2@idx}{##1}{##2}}%

```

```

272 \ltx@ifnextchar[%
273   {\@idxcmds@appdef{#2}}
274   {\@idxcmds@appdef{#2}[]}]%
275 }
276
277 \endinput
278 % -----
279 % HISTORY:
280 2012/11/02 v0.1 - first working version
281 2013/04/11 v0.1a - made \newidxcmd, \newsbmainidxcmd and \newsbidxcmd robust
282 2013/04/16 v0.2 - added trailing optional argument to defined commands
283                   that allows appending stuff to the index entry at use-time
284 2013/05/14 v0.2a - added \setidxcmds
285 2013/08/31 v0.2b - added option `idx-cmd'

```

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.

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