

# The **tableof** package

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## Abstract

The package commands `\toftagstart`, `\toftagstop`, `\toftagthis`, `\tofun-tagthis` are used to flag chapters or sections or anything ending up in the `.toc` file following an (implicit or explicit) `\addcontentsline`. Then

`\nexttocwithtags{<required1,required2,...>}{<excluded1,excluded2,...>}`

specifies which tags are to be required and which ones are to be excluded by the next `\tableofcontents` (or equivalent) document command. For document with classes where `\tableofcontents` is only single-use, the package provides:

`\tableoftaggedcontents{<required1,required2,...>}{<excluded1,excluded2,...>}`

which removes this restriction.

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## 1 Tagging commands

### 1.1 `\toftagstart{csv,list}` and `\toftagstop{csv,list}`

These commands have a mandatory argument which is a comma separated list of tags. The tags need not have been predeclared.

## 2 Table of contents commands

```
\toftagstart{kitchenware,weaponry,gastronomy}
\section{Dealing with knives} % tagged with kitchenware+weaponry+gastronomy

\toftagstop{kitchenware}
\section{Hunting rabbits} % tagged with weaponry+gastronomy

\toftagstart{tag1}
\subsection{This is tagged, too} % tagged with weaponry+gastronomy+tag1

\toftagstop{weaponry}
\section{Eating rabbits} % tagged with gastronomy+tag1
```

### 1.2 `\toftagthis{csv,list}` and `\tofuntagthis{csv,list}`

The `\toftagthis` command flags with the comma separated values from its list argument only the *next* sectioning command. The `\tofuntagthis` command similarly untags only the *next* entry.

```
\toftagstart{kitchenware,rabbits}
\section{Knives and rabbits} % tagged with kitchenware and rabbits

\tofuntagthis{kitchenware}
\subsection{Hunting rabbits} % tagged only with rabbits

\subsection{Best knives for cooking} % tagged with kitchenware and rabbits

\toftagstart{ecology}
\toftagthis{climate}
\section{Knives and global climate} % tagged with kitchenware+rabbits+ecology+climate

\toftagstop{kitchenware}
\section{The rabbit in the wild} % tagged with rabbits+ecology
```

### 1.3 Spaces

Spaces in tags are significant (as usual with  $\text{\TeX}$  multiple spaces count for one). Do not use spaces after the opening brace or before the closing brace, do not use spaces before or after a comma: `\toftagthis{one tag with spaces}` is ok, `\toftagthis{tag1 }` or `\toftagthis{tag1, tag2}` are not.

## 2 Table of contents commands

### 2.1 `\tableoftaggedcontents{required, csv, list}{excluded, csv, list}`

This command is provided in case the document class allows only a single use of `\tableofcontents`: it can be used arbitrarily many times. However it does not typeset a heading. Example:

```
\section*{A table of tagged contents} % <- needs to be explicitly added
\tableoftaggedcontents{weaponry,hunting}{ecology,climate}
```

## 2 Table of contents commands

This will limit the printed TOC entries to the ones which have been tagged with `weaponry` and also with `hunting`, but not with `ecology` and neither with `climate`.

### 2.1.1 starred variants

There are starred variants:

```
\tableoftaggedcontents{A,B}{C,D,E} % A and B and neither C nor D nor E
\tableoftaggedcontents*{A,B}{C,D,E} % (A or B) and neither C nor D nor E
\tableoftaggedcontents{A,B}*{C,D,E} % A and B and (not C or not D or not E)
\tableoftaggedcontents*{A,B}*{C,D,E} % (A or B) and (not C or not D or not E)
```

### 2.2 `\tableof{required, csv, list}`

This is equivalent to `\tableoftaggedcontents{required, csv, list}{}`.

```
\tableof{weaponry, hunting} % will print the entries tagged with weaponry
                           AND hunting
```

There is a starred variant:

```
\tableof*{weaponry, hunting} % will print the entries tagged with weaponry
                             OR hunting
```

### 2.3 `\tablenotof{excluded, csv, list}`

This is equivalent to `\tableoftaggedcontents{}{excluded, csv, list}`.

```
\tablenotof{weaponry, hunting} % will print the entries NOT tagged with weaponry
                               NEITHER with hunting
```

There is a starred variant:

```
\tablenotof*{weaponry, hunting} % will print the entries NOT tagged with weaponry
                                OR NOT tagged with hunting
```

### 2.4 `\nexttocwithtags{required, csv, list}{excluded, csv, list}`

This command influences the next `\tableofcontents` (or equivalent) command:

```
\nexttocwithtags{A,B}{C,D,E}
\tableofcontents
```

will let `\tableofcontents` print only the sectioning units having been flagged with both A and B and none of C, D, or E.

Do not forget the second pair of braces if you only want to require some tags:  
`\nexttocwithtags{tag1, tag2}{}`.

#### 2.4.1 starred variants

There are starred variants:

```
\nexttocwithtags{A,B}{C,D,E} % A and B and neither C nor D nor E
\nexttocwithtags*{A,B}{C,D,E} % (A or B) and neither C nor D nor E
\nexttocwithtags{A,B}*{C,D,E} % A and B and (not C or not D or not E)
\nexttocwithtags*{A,B}*{C,D,E} % (A or B) and (not C or not D or not E)
```

## 2.5 `\tofOpenTocFileForWrite`

The `.toc` file is read (if it exists) into memory by `tableof` at the time of `\usepackage{tableof}`, for use by `\tableoftaggedcontents`, `\tableof` and `\tablenotof`.

But the creation of the `.toc` file is not dealt with by `tableof` itself: either this will be done by a standard `\tableofcontents` command somewhere in the document, or, one may use the package provided command `\tofOpenTocFileForWrite` which does not display anything and just does what its name indicates. This command can be used also in the preamble.

Again: this command should *not* be used when the document makes use of its own `\tableofcontents` or equivalent. It is provided only for the case where the document uses exclusively `\tableoftaggedcontents`, `\tableof` and `\tablenotof`.

## 2.6 Compatibility with other packages

`tableof` checks if `hyperref` is loaded as `hyperref` modifies the format of the lines in the `.toc` file (and this must be taken into account). This check is done at the `\begin{document}` so the order of loading is not important.

`tableof` adds the tag data to the `.toc` file, but this data self-defines itself to do nothing when not activated by `tableof`'s own commands.

No testing has actually been done of compatibility with packages manipulating tables of contents, apart from `etoc`.<sup>1</sup> It went fine.

## 2.7 TODO

Create a parser for arbitrary iterated boolean combinations of tags . . . but this kind of thing must have been done a zillion times already, as it belongs to the basics in computer science! . . . and it surely is no easy task in  $\text{\TeX}$ ! so I cautiously retreated from re-doing something difficult which has already been done somewhere by someone . . .

## 2.8 version history

- 2013/03/04 v1.2: i. added `\tableoftaggedcontents` as a wrapper for using `\nexttocwithtags` followed with `tableof`'s private copy of the `.toc` data.
  - ii. added `\if@files` test to `\tofOpenTocFileForWrite`.
- 2012/12/13 v1.1: i. new command `\nexttocwithtags`.
  - ii. `.toc` may be input in another document not loading `tableof`.
- 2012/12/06 v1.0: initial version.

## 3 Generating the package file and the test file

Running `latex` (or `pdflatex`) on `tableof.dtx` generates: 1) the package file `tableof.sty` (which should be moved to a suitable location within the  $\text{\TeX}$  installation), 2) `tableof.ins` for  $\text{\TeX}$  distributions expecting such a file, 3) `tableoftest.tex` which demonstrates the package features (one should run `latex` twice on it), and 4) the documentation itself (run `pdflatex` twice to get the bookmarks.)

---

<sup>1</sup><http://www.ctan.org/pkg/etoc>

## 4 Implementation

Writing-up source code comments is hopefully for a future release.

```

1 \ProvidesPackage{tableof}
2 [2013/03/04 v1.2 tables of tagged contents (jfb)]
3 \NeedsTeXFormat{LaTeX2e}
4 \DeclareOption*{\PackageWarning{tableof}{Option ‘\CurrentOption’ is unknown.}}
5 \ProcessOptions\relax
6 \newtoks\tof@toctoks
7 \def\tof@readtoc#1{%
8   \ifeof #1
9     \let\tof@nextread\@gobble
10    \global\tof@toctoks\expandafter{\the\tof@toctoks}%
11  \else
12    \let\tof@nextread\tof@readtoc
13    \read #1 to \tof@buffer
14    \tof@toctoks\expandafter\expandafter\expandafter
15      {\expandafter\the\expandafter\tof@toctoks\tof@buffer}%
16  \fi
17  \tof@nextread{#1}}
18 \IfFileExists{\jobname .toc}
19   {% \endlinechar-1
20     \makeatletter
21     \newread\tof@tf
22     \openin\tof@tf\@filef@und
23     \tof@readtoc\tof@tf
24     \closein\tof@tf}}}
```

2013/03/04: \string{->{, idem with }. And added \if@filesw test.

```

25 \AtBeginDocument{
26   \addtocontents{toc}{\string\@ifundefined\tof@begin}}
27   \addtocontents{toc}{\let\string\tof@begin\string\relax%
28     \string\let\string\tof@finish\string\relax%
29     \string\let\string\tof@starttags\string\@gobble%
30     \string\let\string\tof@stoptags\string\@gobble%
31     \string\let\string\tof@tagthis\string\@gobble%
32     \string\let\string\tof@untagthis\string\@gobble}}}}
33   \addtocontents{toc}{\string\tof@begin}
34   \@ifpackageloaded{hyperref}
35     {\def\tof@gobblethree@orfour#1#2#3#4{%
36       \ifx\hyper@last\@undefined\tof@toctoks}\fi}
37     {\def\tof@gobblethree@orfour#1#2#3}}
38 \AtEndDocument{\addtocontents{toc}{\string\tof@finish}}
39 \newcommand\tofOpenTocFileForWrite{%
40   \if@filesw
41     \newwrite \tf@toc
42     \immediate \openout \tf@toc \jobname .toc\relax
43   \fi}
```

Creating our booleans is not the most economical, (one could have used a single list macro) but heck, how many tags are there going to be anyhow in normal use? a dozen at the very most I think.

## 4 Implementation

```
44 \def\tof@tags{}
45 \def\tof@tags@tmp{}
46 \def\tof@untags@tmp{}
47 \def\tof@true#1{\expandafter\let\csname tofsw@#1\endcsname\iftrue}
48 \def\tof@false#1{\expandafter\let\csname tofsw@#1\endcsname\iffalse}
49 \def\tof@secondiftrue#1{\csname tofsw@#1\endcsname
50         \let\tof@next\@secondoftwo\fi}
51 \def\tof@secondiffalse#1{\csname tofsw@#1\endcsname\else
52         \let\tof@next\@secondoftwo\fi}
```

Just using the \@for thing with no attempt at any more sophisticated parsing (for spaces in particular).

```
53 \def\tof@setflags#1{\let\tof@next\@firstoftwo
54     \@for\@tempa:=#1\do{\tof@true{\@tempa}}}%
55     \@for\@tempa:=\tof@tags\do{\tof@false{\@tempa}}}%
56     \@for\@tempa:=\tof@tags@tmp\do{\tof@false{\@tempa}}}%
57     \@for\@tempa:=\tof@untags@tmp\do{\tof@true{\@tempa}}}}

58 \def\tof@filter#1#2{\ifx#1#2\else
59     \ifx\tof@tmptags\@empty\edef\tof@tmptags{#2}\else
60     \edef\tof@tmptags{\tof@tmptags,#2}\fi\fi}
61 \def\tof@@starttags#1{%
62     \ifx\tof@tags\@empty\edef\tof@tags{#1}\else
63     \edef\tof@tags{\tof@tags,#1}\fi}
64 \def\tof@@stoptags#1{%
65     \@for\@tempa:=#1\do{\def\tof@tmptags{}}%
66     \@for\@tempb:=\tof@tags\do{\tof@filter\@tempa\@tempb}%
67     \edef\tof@tags{\tof@tmptags}}

68 \def\tof@init#1{%
69     \def\tof@begin{%
70         \begingroup
71         \def\tof@finish{\endgroup\global\let\tof@begin\relax}%
72         \let\tof@saveditags\contentsline
73         \let\tof@starttags\tof@@starttags
74         \let\tof@stoptags\tof@@stoptags
75         \def\tof@tagthis####1{\def\tof@tags@tmp{####1}}}%
76         \def\tof@untagthis####1{\def\tof@untags@tmp{####1}}}%
77         \def\contentsline{#1}}

78 \def\tof@and#1{%
79     \tof@init{\tof@setflags{#1}\def\tof@tags@tmp{}\def\tof@untags@tmp{}}%
80     \@for\@tempa:=#1\do{\tof@secondiftrue{\@tempa}}}%
81     \tof@next\tof@saveditags\tof@gobblethree@orfour}%
82     \the\tof@toctoks}
83 \def\tof@or#1{%
84     \tof@init{\tof@setflags{#1}\def\tof@tags@tmp{}\def\tof@untags@tmp{}}%
85     \@for\@tempa:=#1\do{\tof@secondiffalse{\@tempa}}}%
86     \tof@next\tof@gobblethree@orfour\tof@saveditags}%
87     \the\tof@toctoks}
88 \def\tof@nor#1{%
89     \tof@init{\tof@setflags{#1}\def\tof@tags@tmp{}\def\tof@untags@tmp{}}%
90     \@for\@tempa:=#1\do{\tof@secondiffalse{\@tempa}}}%
91     \tof@next\tof@saveditags\tof@gobblethree@orfour}%
92     \the\tof@toctoks}
```

## 4 Implementation

```
93 \def\tof@nand#1{%
94   \tof@init{\tof@setflags{#1}\def\tof@tags@tmp{}\def\tof@untags@tmp{}}%
95   \@for\@tempa:=#1\do{\tof@secondiftrue{\@tempa}}%
96   \tof@next\tof@gobblethree@orfour\tof@savedcontentsline}%
97   \the\tof@toctoks}
98 \newcommand*\tableof{\@ifstar{\tof@or}{\tof@and}}
99 \newcommand*\tablenotof{\@ifstar{\tof@nand}{\tof@nor}}

100 \def\tof@nextof@or#1{\toks\z@\tof@setflags{#1}%
101   \@for\@tempa:=#1\do{\tof@secondiffalse{\@tempa}}%
102   \tof@next
103   {\def\tof@tags@tmp{}\def\tof@untags@tmp{}\tof@gobblethree@orfour}}%
104   \@ifstar{\tof@nextof@nand}{\tof@nextof@nor}}
105 \def\tof@nextof@and#1{\toks\z@\tof@setflags{#1}%
106   \@for\@tempa:=#1\do{\tof@secondiftrue{\@tempa}}%
107   \tof@next\@secondoftwo\@firstoftwo
108   {\def\tof@tags@tmp{}\def\tof@untags@tmp{}\tof@gobblethree@orfour}}%
109   \@ifstar{\tof@nextof@nand}{\tof@nextof@nor}}
110 \def\tof@nextof@nor#1{%
111   \toks\z@\expandafter{\the\toks\z@
112     {\tof@setflags{#1}\def\tof@tags@tmp{}\def\tof@untags@tmp{}}%
113     \@for\@tempa:=#1\do{\tof@secondiffalse{\@tempa}}%
114     \tof@next\tof@savedcontentsline\tof@gobblethree@orfour}}%
115   \expandafter\tof@init\expandafter{\the\toks\z@}%
116   \tof@printtoc}
117 \def\tof@nextof@nand#1{%
118   \toks\z@\expandafter{\the\toks\z@
119     {\tof@setflags{#1}\def\tof@tags@tmp{}\def\tof@untags@tmp{}}%
120     \@for\@tempa:=#1\do{\tof@secondiftrue{\@tempa}}%
121     \tof@next\tof@gobblethree@orfour\tof@savedcontentsline}}%
122   \expandafter\tof@init\expandafter{\the\toks\z@}%
123   \tof@printtoc}
124 \newcommand*\nexttocwithtags{\let\tof@printtoc\relax
125   \@ifstar{\tof@nextof@or}{\tof@nextof@and}}
126 \newcommand*\tableoftaggedcontents{\def\tof@printtoc{\the\tof@toctoks}%
127   \@ifstar{\tof@nextof@or}{\tof@nextof@and}}

128 \newcommand*\toftagthis[1]{\addtocontents{toc}
129   {\string\tof@tagthis{#1}}}
130 \newcommand*\tofuntagthis[1]{\addtocontents{toc}
131   {\string\tof@untagthis{#1}}}
132 \newcommand*\toftagstart[1]{\addtocontents{toc}
133   {\string\tof@starttags{#1}}}
134 \newcommand*\toftagstop[1]{\addtocontents{toc}
135   {\string\tof@stoptags{#1}}}
136 \endinput
```