

# The aliascnt package

Heiko Oberdiek\*

2018/09/07 v1.5

## Abstract

Package `aliascnt` introduces *alias counters* that share the same counter register and clear list.

## Contents

<b>1</b>	<b>User interface</b>	<b>2</b>
1.1	Introduction . . . . .	2
1.2	Syntax . . . . .	2
<b>2</b>	<b>Implementation</b>	<b>2</b>
2.1	Identification . . . . .	2
2.2	Create new alias counter . . . . .	2
2.3	Counter clear list . . . . .	3
<b>3</b>	<b>Installation</b>	<b>4</b>
3.1	Download . . . . .	4
3.2	Bundle installation . . . . .	4
3.3	Package installation . . . . .	4
3.4	Refresh file name databases . . . . .	4
3.5	Some details for the interested . . . . .	4
<b>4</b>	<b>Acknowledgement</b>	<b>5</b>
<b>5</b>	<b>References</b>	<b>5</b>
<b>6</b>	<b>History</b>	<b>5</b>
	[2006/02/20 v1.0] . . . . .	5
	[2006/08/16 v1.1] . . . . .	5
	[2006/09/25 v1.2] . . . . .	5
	[2009/09/08 v1.3] . . . . .	5
	[2016/05/16 v1.4] . . . . .	6
	[2018/09/07 v1.5] . . . . .	6
<b>7</b>	<b>Index</b>	<b>6</b>

---

\*Please report any issues at <https://github.com/ho-tex/oberdiek/issues>

# 1 User interface

## 1.1 Introduction

There are features that rely on the name of counters. For example, `hyperref`'s `\autoref` indirectly uses the counter name to determine which label text it puts in front of the reference number ([3]). In some circumstances this fails: several theorem environments are defined by `\newtheorem` that share the same counter.

## 1.2 Syntax

Macro names in user land contain the package name `aliascnt` in order to prevent name clashes.

```
\newaliascnt{<ALIASCNT>}{<BASECNT>}
```

An alias counter `ALIASCNT` is created that does not allocate a new TeX counter register. It shares the count register and the clear list with counter `BASECNT`. If the value of either the two registers is changed, the changes affects both.

```
\aliascntresetthe{<ALIASCNT>}
```

This fixes a problem with `\newtheorem` if it is fooled by an alias counter with the same name:

```
\newtheorem{foo}{Foo}% counter "foo"
\newaliascnt{bar}{foo}% alias counter "bar"
\newtheorem{bar}[bar]{Bar}
\aliascntresetthe{bar}
```

# 2 Implementation

## 2.1 Identification

```
1 <*package>
2 \NeedsTeXFormat{LaTeX2e}
3 \ProvidesPackage{aliascnt}%
4 [2018/09/07 v1.5 Alias counters (HO)]%
```

## 2.2 Create new alias counter

`\newaliascnt` A new alias counter is set up by `\newaliascnt`. The following properties are added for the new counter `CNT`:

`\theH<CNT>`: Compatibility for `hyperref`

`\AC@cnt@<CNT>`: Name of the referenced counter in the definition.

```
5 \newcommand*{\newaliascnt}[2]{%
6   \begingroup
7     \def\AC@glet##1{%
8       \global\expandafter\let\csname##1#1\expandafter\endcsname
9       \csname##1#2\endcsname
10    }%
11    \ifundefined{c@#2}{%
12      \nocounterr{#2}%
13    }{%
14      \expandafter\@ifdefinable\csname c@#1\endcsname{%
15        \AC@glet{c@}%
16        \AC@glet{the}%

```

```

17      \AC@gllet{theH}%
18      \AC@gllet{p@}%
19      \expandafter\gdef\csname AC@cnt@#1\endcsname{#2}%
20      \expandafter\gdef\csname cl@#1\expandafter\endcsname
21      \expandafter{\csname cl@#2\endcsname}%
22    }%
23  }%
24 \endgroup
25 }

```

`\aliascntresetthe` The `\the<CNT>` macro is restored using the main counter.

```

26 \newcommand*{\aliascntresetthe}[1]{%
27   \ifundefined{AC@cnt@#1}{%
28     \PackageError{aliascnt}{%
29       '#1' is not an alias counter%
30     }\@ehc
31   }{%
32     \expandafter\let\csname the#1\expandafter\endcsname
33     \csname the\csname AC@cnt@#1\endcsname\endcsname
34   }%
35 }

```

## 2.3 Counter clear list

The alias counters share the same register and clear list. Therefore we must ensure that manipulations to the clear list are done with the clear list macro of a real counter.

`\AC@findrootcnt` `\AC@findrootcnt` walks through the aliasing relations to find the base counter.

```

36 \newcommand*{\AC@findrootcnt}[1]{%
37   \ifundefined{AC@cnt@#1}{%
38     #1%
39   }{%
40     \expandafter\AC@findrootcnt\csname AC@cnt@#1\endcsname
41   }%
42 }

```

Clear lists are manipulated by `\@addtoreset` and `\@removefromreset`. The latter one is provided by the `remreset` package ([2] for old latex formats).

`\AC@patch` The same patch principle is applicable to both `\@addtoreset` and `\@removefromreset`.

```

43 \def\AC@patch#1{%
44   \expandafter\let\csname AC@org@#1reset\expandafter\endcsname
45   \csname @#1reset\endcsname
46   \expandafter\def\csname @#1reset\endcsname##1##2{%
47     \csname AC@org@#1reset\endcsname{##1}{\AC@findrootcnt{##2}}%
48   }%
49 }

```

If `remreset` is not loaded we cannot delay the patch to `\AtBeginDocument`, because `\@removefromreset` can be called in between. Therefore we force the loading of the package.

```

50 \ifx\@removefromreset\undefined
51   \RequirePackage{remreset}
52 \fi
53 \AC@patch{addto}
54 \AC@patch{removefrom}
55 \</package>

```

## 3 Installation

### 3.1 Download

**Package.** This package is available on CTAN<sup>1</sup>:

`CTAN:macros/latex/contrib/oberdiek/aliascnt.dtx` The source file.

`CTAN:macros/latex/contrib/oberdiek/aliascnt.pdf` Documentation.

**Bundle.** All the packages of the bundle ‘oberdiek’ are also available in a TDS compliant ZIP archive. There the packages are already unpacked and the documentation files are generated. The files and directories obey the TDS standard.

`CTAN:install/macros/latex/contrib/oberdiek.tds.zip`

*TDS* refers to the standard “A Directory Structure for T<sub>E</sub>X Files” (`CTAN:pkg/tds`). Directories with `texmf` in their name are usually organized this way.

### 3.2 Bundle installation

**Unpacking.** Unpack the `oberdiek.tds.zip` in the TDS tree (also known as `texmf` tree) of your choice. Example (linux):

```
unzip oberdiek.tds.zip -d ~/texmf
```

### 3.3 Package installation

**Unpacking.** The `.dtx` file is a self-extracting `docstrip` archive. The files are extracted by running the `.dtx` through plain T<sub>E</sub>X:

```
tex aliascnt.dtx
```

**TDS.** Now the different files must be moved into the different directories in your installation TDS tree (also known as `texmf` tree):

```
aliascnt.sty → tex/latex/oberdiek/aliascnt.sty
aliascnt.pdf → doc/latex/oberdiek/aliascnt.pdf
aliascnt.dtx → source/latex/oberdiek/aliascnt.dtx
```

If you have a `docstrip.cfg` that configures and enables `docstrip`’s TDS installing feature, then some files can already be in the right place, see the documentation of `docstrip`.

### 3.4 Refresh file name databases

If your T<sub>E</sub>X distribution (T<sub>E</sub>X Live, MiK<sub>T</sub><sub>E</sub>X, ...) relies on file name databases, you must refresh these. For example, T<sub>E</sub>X Live users run `texhash` or `mktexlsr`.

### 3.5 Some details for the interested

**Unpacking with L<sup>A</sup>T<sub>E</sub>X.** The `.dtx` chooses its action depending on the format:

**plain T<sub>E</sub>X:** Run `docstrip` and extract the files.

**L<sup>A</sup>T<sub>E</sub>X:** Generate the documentation.

---

<sup>1</sup>`CTAN:pkg/aliascnt`

If you insist on using L<sup>A</sup>T<sub>E</sub>X for docstrip (really, docstrip does not need L<sup>A</sup>T<sub>E</sub>X), then inform the autodetect routine about your intention:

```
latex \let\install=y\input{aliascnt.dtx}
```

Do not forget to quote the argument according to the demands of your shell.

**Generating the documentation.** You can use both the .dtx or the .drv to generate the documentation. The process can be configured by the configuration file ltxdoc.cfg. For instance, put this line into this file, if you want to have A4 as paper format:

```
\PassOptionsToClass{a4paper}{article}
```

An example follows how to generate the documentation with pdfL<sup>A</sup>T<sub>E</sub>X:

```
pdflatex aliascnt.dtx
makeindex -s gind.ist aliascnt.idx
pdflatex aliascnt.dtx
makeindex -s gind.ist aliascnt.idx
pdflatex aliascnt.dtx
```

## 4 Acknowledgement

**Ulrich Schwarz:** The package is based on his draft for “Die T<sub>E</sub>Xnische Komödie”, see [1].

## 5 References

- [1] Ulrich Schwarz: *Was hinten herauskommt zählt: Counter Aliasing in L<sup>A</sup>T<sub>E</sub>X, Die T<sub>E</sub>Xnische Komödie*, 3/2006, pages 8–14, Juli 2006.
- [2] David Carlisle: *The **reset** package*; 1997/09/28; **CTAN:pkg/reset**.
- [3] Sebastian Rahtz, Heiko Oberdiek: *The **hyperref** package*; 2006/08/16 v6.75c; **CTAN:pkg/hyperref**.

## 6 History

[2006/02/20 v1.0]

- First version.

[2006/08/16 v1.1]

- Update of bibliography.

[2006/09/25 v1.2]

- Bug fix (\aliascntresetthe).

[2009/09/08 v1.3]

- Bug fix of \@ifdefinable’s use (thanks to Uwe Lück).

[2016/05/16 v1.4]

- Documentation updates.

[2018/09/07 v1.5]

- Avoid loading obsolete remreset package..

## 7 Index

Numbers written in *italic* refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; plain numbers refer to the code lines where the entry is used.

Symbols		19, 20, 21, 32, 33, 40, 44, 45, 46, 47
\@ehc .....	30	
\@ifdefinable .....	14	
\@ifundefined .....	11, 27, 37	
\@nocounterr .....	12	
\@removefromreset .....	50	
\@undefined .....	50	
<b>A</b>		
\AC@findrootcnt .....	<u>36</u> , 47	
\AC@glet .....	7, 15, 16, 17, 18	
\AC@patch .....	<u>43</u> , 53, 54	
\aliascntresetthe .....	2, <u>26</u>	
<b>C</b>		
\csname .....	8, 9, 14,	
	19, 20, 21, 32, 33, 40, 44, 45, 46, 47	
<b>E</b>		
\endcsname .....	8, 9, 14,	
<b>G</b>		
\gdef .....	19, 20	
<b>I</b>		
\ifx .....	50	
<b>N</b>		
\NeedsTeXFormat .....	2	
\newaliascnt .....	2, <u>5</u>	
\newcommand .....	5, 26, 36	
<b>P</b>		
\PackageError .....	28	
\ProvidesPackage .....	3	
<b>R</b>		
\RequirePackage .....	51	