The refcount package

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Abstract

References are not numbers, however they often store numerical data such as section or page numbers. `\ref` or `\pageref` cannot be used for counter assignments or calculations because they are not expandable, generate warnings, or can even be links, The package provides expandable macros to extract the data from references. Packages hyperref, nameref, titleref, and babel are supported.

Contents

1 Usage

1.1 Setting counters

The following commands are similar to LaTeX's `\setcounter` and `\addtocounter`, but they extract the number value from a reference:

> `\setcounterref`, `\addtocounterref`
> `\setcounterpageref`, `\addtocounterpageref`

They take two arguments:

> `\...counter...ref` {⟨*LaTeX counter*⟩} {⟨*reference*⟩}

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An undefined references produces the usual LaTeX warning and its value is assumed to be zero. Example:

```
\newcounter{ctrA}
\newcounter{ctrB}
\refstepcounter{ctrA}\label{ref:A}
\setcounterref{ctrB}{ref:A}
\addtocounterpageref{ctrB}{ref:A}
```

1.2 Expandable commands

These commands that can be used in expandible contexts (inside calculations, `\edef`, `\csname`, `\write`, ...):

`\getrefnumber`, `\getpagerefnumber`

They take one argument, the reference:

`\get...refnumber` {⟨*reference*⟩}

The default for undefined references can be changed with macro `\setrefcountdefault`, for example this package calls:

`\setrefcountdefault{0}`

Since version 2.0 of this package there is a new command:

`\getrefbykeydefault` {⟨*reference*⟩} {⟨*key*⟩} {⟨*default*⟩}

This generalized version allows the extraction of further properties of a reference than the two standard ones. Thus the following properties are supported, if they are available:

Key	Description	Package
⟨*empty*⟩	same as `\ref`	LaTeX
page	same as `\pageref`	LaTeX
title	section and caption titles	titleref
name	section and caption titles	nameref
anchor	anchor name	hyperref
url	url/file	hyperref/xr

1.3 Undefined references

Because warnings and assignments cannot be used in expandible contexts, undefined references do not produce a warning, their values are assumed to be zero. Example:

```
\label{ref:here}% somewhere
\refused{ref:here}% see below
\ifodd\getpagerefnumber{ref:here}%
  reference is on an odd page
\else
  reference is on an even page
\fi
```

In case of undefined references the user usually want's to be informed. Also LaTeX prints a warning at the end of the LaTeX run. To notify LaTeX and get a normal warning, just use

`\refused` {⟨*reference*⟩}

outside the expanding context. Example, see above.

1.4 Notes

- The method of extracting the number in this package also works in cases, where the reference cannot be used directly, because a package such as hyperref has added extra stuff (hyper link), so that the reference cannot be used as number any more.

- If the reference does not contain a number, assignments to a counter will fail of course.

2 Implementation

```
1 ⟨*package⟩
2 \NeedsTeXFormat{LaTeX2e}
3 \ProvidesPackage{refcount}
4   [2008/08/11 v3.1 Data extraction from references (HO)]%
5
6 \def\setrefcountdefault#1{%
7   \def\rc@default{#1}%
8 }
9 \setrefcountdefault{0}
10
11 % \def\@car#1#2\@nil{#1} % defined in LaTeX kernel
12 \def\rc@cartwo#1#2#3\@nil{#2}
13
14 % generic check without babel support
15 \long\def\rc@refused#1{%
16   \expandafter\ifx\csname r@#1\endcsname\relax
17     \protect\G@refundefinedtrue
18     \@latex@warning{%
19       Reference '#1' on page \thepage\space undefined%
20     }%
21   \fi
22 }
23
24 % user command, add babel support
25 \newcommand*{\refused}[1]{%
26   \begingroup
27     \csname @safe@activestrue\endcsname
28     \rc@refused{#1}{}%
29   \endgroup
30 }
31
32 % Generic command for "\{set,addto}counter{page,}ref":
33 % #1: \setcounter, \addtocounter
34 % #2: \@car (for \ref), \@cartwo (for \pageref)
35 % #3: LaTeX counter
36 % #4: reference
37 \def\rc@set#1#2#3#4{%
38   \begingroup
39     \csname @safe@activestrue\endcsname
40     \rc@refused{#4}%
41     \expandafter\rc@@set\csname r@#4\endcsname{#1}{#2}{#3}%
42   \endgroup
43 }
44 % #1: \r@<...>
45 % #2: \setcounter, \addtocounter
46 % #3: \@car (for \ref), \@cartwo (for \pageref)
47 % #4: LaTeX counter
48 \def\rc@@set#1#2#3#4{%
49   \ifx#1\relax
50     #2{#4}{\rc@default}%
```

```latex
51    \else
52      #2{#4}{%
53        \expandafter#3#1\rc@default\rc@default\@nil
54      }%
55    \fi
56  }
57
58  % user commands:
59
60  \newcommand*{\setcounterref}{\rc@set\setcounter\@car}
61  \newcommand*{\addtocounterref}{\rc@set\addtocounter\@car}
62  \newcommand*{\setcounterpageref}{\rc@set\setcounter\rc@cartwo}
63  \newcommand*{\addtocounterpageref}{\rc@set\addtocounter\rc@cartwo}
64
65  \newcommand*{\getrefnumber}[1]{%
66    \expandafter\ifx\csname r@#1\endcsname\relax
67      \rc@default
68    \else
69      \expandafter\expandafter\expandafter\@car
70      \csname r@#1\endcsname\@nil
71    \fi
72  }
73  \newcommand*{\getpagerefnumber}[1]{%
74    \expandafter\ifx\csname r@#1\endcsname\relax
75      \rc@default
76    \else
77      \expandafter\expandafter\expandafter\rc@cartwo
78      \csname r@#1\endcsname\rc@default\rc@default\@nil
79    \fi
80  }
81  \newcommand*{\getrefbykeydefault}[2]{%
82    \expandafter\rc@getrefbykeydefault
83      \csname r@#1\expandafter\endcsname
84      \csname rc@extract@#2\endcsname
85  }
86  % #1: \r@<...>
87  % #2: \rc@extract@<...>
88  % #3: default
89  \def\rc@getrefbykeydefault#1#2#3{%
90    \ifx#1\relax
91      % reference is undefined
92      #3%
93    \else
94      \ifx#2\relax
95        % extract method is missing
96        #3%
97      \else
98        \expandafter\rc@generic#1{#3}{#3}{#3}{#3}{#3}\@nil#2{#3}%
99      \fi
100   \fi
101 }
102 % #1: first item in \r@<...>
103 % #2: remaining items in \r@<...>
104 % #3: \rc@extract@<...>
105 % #4: default
106 \def\rc@generic#1#2\@nil#3#4{%
107   #3{#1\TR@TitleReference\@empty{#4}\@nil}{#1}#2\@nil
108 }
109 \def\rc@extract@{%
110   \expandafter\@car\@gobble
111 }
112 \def\rc@extract@page{%
```

```
113    \expandafter\@car\@gobbletwo
114 }
115 \def\rc@extract@name{%
116    \expandafter\@car\@gobblefour\@empty
117 }
118 \def\rc@extract@anchor{%
119    \expandafter\@car\@gobblefour
120 }
121 \def\rc@extract@url{%
122    \expandafter\expandafter\expandafter\@car\expandafter
123        \@gobble\@gobblefour
124 }
125 \def\rc@extract@title#1#2\@nil{%
126    \rc@@extract@title#1%
127 }
128 \def\rc@@extract@title#1\TR@TitleReference#2#3#4\@nil{#3}
```
129 ⟨/package⟩

3 Installation

3.1 Download

Package. This package is available on CTAN[1]:

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

CTAN:macros/latex/contrib/oberdiek/refcount.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 TeX Files" (CTAN:tds/tds.pdf). 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

Script installation. Check the directory `TDS:scripts/oberdiek/` for scripts that need further installation steps. Package `attachfile2` comes with the Perl script `pdfatfi.pl` that should be installed in such a way that it can be called as `pdfatfi`. Example (linux):

    chmod +x scripts/oberdiek/pdfatfi.pl
    cp scripts/oberdiek/pdfatfi.pl /usr/local/bin/

3.3 Package installation

Unpacking. The `.dtx` file is a self-extracting `docstrip` archive. The files are extracted by running the `.dtx` through plain-TeX:

    tex refcount.dtx

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[1] ftp://ftp.ctan.org/tex-archive/

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

```
refcount.sty → tex/latex/oberdiek/refcount.sty
refcount.pdf → doc/latex/oberdiek/refcount.pdf
refcount.dtx → source/latex/oberdiek/refcount.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 TeX distribution (teTeX, mikTeX, . . .) relies on file name databases, you must refresh these. For example, teTeX users run `texhash` or `mktexlsr`.

3.5 Some details for the interested

Attached source. The PDF documentation on CTAN also includes the `.dtx` source file. It can be extracted by AcrobatReader 6 or higher. Another option is `pdftk`, e.g. unpack the file into the current directory:

```
pdftk refcount.pdf unpack_files output .
```

Unpacking with LaTeX. The `.dtx` chooses its action depending on the format:

plain-TeX: Run `docstrip` and extract the files.

LaTeX: Generate the documentation.

If you insist on using LaTeX for `docstrip` (really, `docstrip` does not need LaTeX), then inform the autodetect routine about your intention:

```
latex \let\install=y\input{refcount.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 pdfLaTeX:

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

4 History

[1998/04/08 v1.0]

- First public release, written as answer in the newsgroup comp.text.tex: "Re: Adding a \ref to a counter?"[2]

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[2]Url: http://groups.google.com/group/comp.text.tex/msg/c3f2a135ef5ee528

[2000/09/07 v2.0]

- Documentation added.
- LPPL 1.2
- Package rewritten, new commands added.

[2006/02/20 v3.0]

- Support for hyperref and nameref improved.
- Support for titleref and babel's shorthands added.
- New: \refused, \getrefbykeydefault

[2008/08/11 v3.1]

- Code is not changed.
- URLs updated.

5 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; numbers in roman refer to the code lines where the entry is used.