# The count1to package*

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**Abstract**

This package sets `\count1` to `\count8` with the values of `page` to `subparagraph`. `\count9` is used to flag odd pages. The values of these counters are displayed and written in the .dvi file by TEX and can later be used to select the pages of certain parts of the document for printing if the device driver supports this.

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## 1 Introduction to version 2

The main change of this new version is the removal of the code for the `TotalPages` label. This code didn't work with the hyperref package[4] and better code to achieve the effect of it is contained in the totpages package[3]. So old documents using this package will not work when they try to use the `TotalPages` label; these documents must be changed by inserting a `\usepackage{totpages}` in the preamble and replacing all occurences of `TotalPages` by `TotPages`.

## 2 Introduction

Most of the time users want to print only certain parts of a document; but these can only be selected by using the page numbers of these parts with most device drivers. This can be difficult or impossible if pages in different parts of the document have the same number—e. g. in the frontmatter and the first text pages (iii vs. 3).

*The version number of this file is v2.1, subversion revision #1364, last revised May 21, 2009.
The name count1to is a tribute to the $8 + 3$ file-naming convention of certain ancient "operating systems"; strictly speaking it should be count1to9.

TEX provides an easy solution to this problem: whenever a page is completed by the output routine and shipped out via `\shipout`, it displayes the values of `\count0` to `\count9` on the display (e. g. `[1]`) *and writes them to the .dvi file.*

> "The first ten `\count` registers, `\count0` to `\count9`, are reserved for a special purpose: TEX displays these ten counts on your terminal whenever ouputting a page, and it transmits them to the output file as an identification of that page. The counts are separated by decimal points on your terminal, with trailing '`.0`' patterns suppressed. Thus, for example, if `\count0=5` and `\count2=7` when a page is shipped out to the `dvi` file, and if the other counters are zero, TEX will type '`[5.0.7]`'. Plain TEX uses `\count0` for the page number, and it keeps `\count1` through `\count9` equal to zero; that is why you see '`[1]`' when page 1 is being output. In more complex applications the page numbers can have further structure; ten counts are shipped out so that there will be plenty of identification."[2, p. 119]

Surprinsingly, until recently there existed no package for LATEX that used these `\count`ers although some drivers allow the selection of pages based on other `\count`s then `\count0` (e. g. emTEX).

This package is the solution: It uses the everyshi package[5] to set `\count1` to `\count9` before each `\shipout` with these values:

| `\count` | value |
|---|---|
| 0 | relative page number (set by LATEX) |
| 1 | absolute page number |
| 2 | number of current `\part` |
| 3 | number of current `\chapter` (0 with article class) |
| 4 | number of current `\section` |
| 5 | number of current `\subsection` |
| 6 | number of current `\subsubsection` |
| 7 | number of current `\paragraph` |
| 8 | number of current `\subparagraph` |
| 9 | 1 on odd pages, 0 on even pages[1] |

count1to also works with classes that do not define some or all of the sectioning commands and their counters, like letter. Although it is of somewhat little use then `:-)`.

A note for users of this package: When you select the pages of some part of your document with a lower structure than `\chapter`, remember that only `\part`s and `\chapter`s start on a new page; if you want to print a complete `\section`, you should also select the first page of the next `\section`. Also note that TEX ships out the values of the counters instead of their visual representation (produced with `\the`*counter*), so appendix A sets `\count4` to 1 in the article class.

A note for developers of device drivers: Please add support for `\count1` to `9` to your programs. It would also be nice if users could easily select the next page(s) after a certain count (something like "`*.*.*.*.2+1.*`" should be possible for selecting all pages with `\count4` $\mapsto$ section = 2 plus the first page of section 3).

[1] If you have a better application for `\count9`, let me know.

# 3 Options

The package has no options.

# 4 Required packages

The package requires the everyshi package[5].

# 5 The implementation

```
1 ⟨*package⟩
```

We need the everyshi package.

```
2 \RequirePackage{everyshi}[1994/12/09]
```

We need various `\if`s to check if the used counters are defined.

```
3 \newif\if@have@part
4 \newif\if@have@chapter
5 \newif\if@have@section
6 \newif\if@have@subsection
7 \newif\if@have@subsubsection
8 \newif\if@have@paragraph
9 \newif\if@have@subparagraph
```

`\@countItoIX@ifs` `\@countItoIX@ifs` is used to set all these `\if`s at `\begin{document}`. It is undefined after use to save some space.

```
10 \newcommand*{\@countItoIX@ifs}{
11   \@ifundefined{c@part}           {}{\@have@parttrue}
12   \@ifundefined{c@chapter}        {}{\@have@chaptertrue}
13   \@ifundefined{c@section}        {}{\@have@sectiontrue}
14   \@ifundefined{c@subsection}     {}{\@have@subsectiontrue}
15   \@ifundefined{c@subsubsection}  {}{\@have@subsubsectiontrue}
16   \@ifundefined{c@paragraph}      {}{\@have@paragraphtrue}
17   \@ifundefined{c@subparagraph}   {}{\@have@subparagraphtrue}
18   }
```

`\@countItoIX@bugfix` The current version of LaTeX has the "feature" that only the first level of counters associated with a counter via the optional argument of `\newcounter` is reset when the counter is stepped; so when you start a new chapter, the number for the subsection is not reset. This is normally no problem, but with this package, it is: If this bug is not fixed or worked-around, then whenever you use `\subparagraph` or some other lower sectioning command, and after that a sectioning command that is at least two levels higher (e. g. `\subsubsection`), the value of `subparagraph` would not be reset and would still be displayed and shipped out. So we have to associate *all* lower-level sectioning commands with the higher levels. This is done via `\@addtoreset` at `\begin{document}`. `\@countItoIX@bugfix` is undefined after use to save some space.

```
19 \newcommand*{\@countItoIX@bugfix}{
20   \if@have@part
21     \@addtoreset{section}      {part}
22     \@addtoreset{subsection}   {part}
23     \@addtoreset{subsubsection}{part}
24     \@addtoreset{paragraph}    {part}
```

```
25      \@addtoreset{subparagraph} {part}
26    \fi
27    \if@have@chapter
28      \@addtoreset{subsection}   {chapter}
29      \@addtoreset{subsubsection}{chapter}
30      \@addtoreset{paragraph}    {chapter}
31      \@addtoreset{subparagraph} {chapter}
32    \fi
33    \if@have@section
34      \@addtoreset{subsubsection}{section}
35      \@addtoreset{paragraph}    {section}
36      \@addtoreset{subparagraph} {section}
37    \fi
38    \if@have@subsection
39      \@addtoreset{paragraph}    {subsection}
40      \@addtoreset{subparagraph} {subsection}
41    \fi
42    \if@have@subsubsection
43      \@addtoreset{subparagraph} {subsubsection}
44    \fi
45    }
```

\@countItoIX@init

\@countItoIX@init calls \countItoIX@ifs and \@countItoIX@bugfix and then frees their memory. This is done at \begin{document} via \AtBeginDocument.

```
46 \newcommand*{\@countItoIX@init}{%
47    \message{ABD: Count1to9 initializing macros}%
48    \@countItoIX@ifs\let\@countItoIX@ifs\undefined
49    \@countItoIX@bugfix\let\@countItoIX@bugfix\undefined
50    }
51 \AtBeginDocument{\@countItoIX@init}
```

\@countItoIX@shipout

\@countItoIX@shipout is used for setting \count1 to \count9 at each \shipout.

```
52 \newcommand*{\@countItoIX@shipout}{
```

\count1 is the absolute page number, which we have to maintain by ourselves.

```
53    \global\advance \count1 by 1
```

\count2 to \count8 are set with the values of \part to \subparagraph, if these commands are defined.[2]

```
54    \if@have@part              \count2\value{part}           \fi
55    \if@have@chapter           \count3\value{chapter}        \fi
56    \if@have@section           \count4\value{section}        \fi
57    \if@have@subsection        \count5\value{subsection}     \fi
58    \if@have@subsubsection     \count6\value{subsubsection}  \fi
59    \if@have@paragraph         \count7\value{paragraph}      \fi
60    \if@have@subparagraph      \count8\value{subparagraph}   \fi
```

\count9 is set to 1 on odd pages and to 0 on even pages.

```
61    \ifodd\count1\count9=1     \else\count9=0                \fi
62    }
63 \EveryShipout{\@countItoIX@shipout}
```

64 ⟨/package⟩

[2] We should probably also check the value of secnumdepth, but I don't think this is necessary.

# 6 Acknowledgements

As usual Rebecca Stiels improved the quality of this documentation.

# References

[1] Jeff Goldberg. The lastpage-package.
CTAN:tex-archive/macros/latex/contrib/other/lastpage. LaTeX 2ε package.

[2] Donald E. Knuth. *The TeXBook*, volume A of *Computers and Typesetting*. Addison-Wesley, 1986. Eleventh printing, revised, May 1991.

[3] Wilhelm Müller. The totpages package.
CTAN:tex-archive/macros/latex/contrib/supported/totpages/. LaTeX 2ε package.

[4] Sebastian Rahtz. Hypertext marks in LaTeX.
CTAN:tex-archive/macros/latex/contrib/supported/hyperref/.

[5] Martin Schröder. The everyshi package.
CTAN:tex-archive/macros/latex/contrib/supported/ms/everyshi.dtx.
LaTeX 2ε package.

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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.

**Symbols**

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# Change History

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