The tocvsec2 package*

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Abstract

The tocvsec2 package provides means of controlling the sectional numbering and/or the entries in the Table of Contents on a section by section basis. It is a replacement for the tocvsec package, which should not be used. Use of the package requires eTEX and the ifthen package to be available.

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1 Introduction

In the standard classes two commands are used to control the numbering of sectional divisions in a document, and which level of sectional headings will be included in the Table of Contents (the ToC). Sometimes finer control of these aspects of LATEX is required. The tocvsec2 provides for control over the entries into the ToC on a section by section basis. It also provides a means of locally controlling sectional numbering without having to resort to the starred version of the sectional commands. The package requires the ifthen package to be available.

Portions of the package were developed as part of a class and package bundle for typesetting ISO standards [Wil96]. This manual is typeset according to the

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conventions of the LaTeX DOCSTRIP utility which enables the automatic extraction of the LaTeX macro source files [GMS94].

Section 2 describes the usage of the package. Commented source code for the package is in Section 4.

`secnumdepth` The LaTeX *secnumdepth* counter specifies the level number for the least significant sectional heading that will be numbered. In all the standard classes `\section` has a level number of 1, `\subsection` has a level number of 2, and so on. In the article class (and its derivatives), `\part` has a level number of 0. In the book and report classes, `\chapter` is level number 0 and `\part` has level number -1.

The *secnumdepth* counter is normally set in the preamble and remains constant thereafter. For example:

```
\setcounter{secnumdepth}{2}
```

specifies that `\subsection`s and above should be numbered and `\subsubsections` and below should not be numbered. It turns out that *secnumdepth* can be changed at any point in a document, not just in the preamble, to make a (temporary) change to the section numbering level. This is possible because the heading commands check the value of *secnumdepth* to decide whether or not to number the heading.

`tocdepth` The *tocdepth* counter specifies the level number of the least significant sectional unit that will be listed in the printed Table of Contents (ToC). For example:

```
\setcounter{tocdepth}{1}
```

specifies that the printed ToC should only list sectional headings down to the `\section` level. The value of *tocdepth* has to be set before the `\tableofcontents` command is used. Each sectioning command puts an entry into the `.toc` file, irrespective of the *tocdepth* value. The code implementing the typesetting of the ToC uses *tocdepth* to determine whether or not an entry should be printed. Thus, unlike *secnumdepth* which can be altered at any time and have an effect, it is only the value of *tocdepth* at the time of printing the entries in the `\tableofcontents` that is used — any subsequent changes to *tocdepth* are immaterial.

Note that *tocdepth* only controls what appears in the ToC, and *secnumdepth* only controls which sectional headings are numbered. The effect of changing one has no bearing on the other.

2 The tocvsec2 package

The tocvsec package changed the way in which entries were written to the `.toc` file, enabling effective changes to be made to *tocdepth* at any point in a document.

The basis of that package was to ensure that only those sectional elements that were required to appear in the printed ToC were written to the `.toc` file. The sectional commands call the `\addcontentsline` command to write an entry to the `.toc` file. There were two methods to achieve the desired functionality, both of which required modifications to the internal LaTeX macros.

1. Modify the sectional commands so that they check the value of *tocdepth* in order to decide whether or not to put an entry into the `.toc` file (i.e., call `\addcontentsline`).

2. Modify `\addcontentsline` so that it decides whether or not to write to the `.toc` file. This is less efficient in terms of processing time than changing the sectional commands.

Both approaches had disadvantages. If the tocvsec package changed the sectional commands and it was used in conjunction with another package that also changes these definitions, then one or the other package would not work as expected. On the other hand, changing the `\addcontentsline` command may have had unexpected results if `\addcontentsline` was either modified or used in a different manner elsewhere in the document.

The tocvsec2 package takes a different approach which does not have these disadvantages. It provides a means of inserting commands into the `.toc` file that change the current value of *tocdepth* within the body of the file.

The package also provides some utility commands so you don't have to remember the level numbers of the sectioning commands.

2.1 Changing ToC appearances

`\maxtocdepth` The `\maxtocdepth{`⟨*sec*⟩`}` command can be used after the preamble (and before the `\tableofcontents` command) to set the global value for the *tocdepth*. ⟨*sec*⟩ is the name of a sectioning division (e.g., `part` or `paragraph`). You can also use `all`, meaning all sectioning divisions, or `none`, meaning no sectioning divisions.

Note well: after `\tableofcontents`, the *tocdepth* is reset to the value specified by `\maxtocdepth` in case that counter is used by a subsequent 'List of Figures' or 'List of Tables', as in the standard LaTeX classes.

`\settocdepth` The `\settocdepth{`⟨*sec*⟩`}` command can be used to change the value of the *tocdepth* counter within the `.toc` file, where ⟨*sec*⟩ is the name of a sectional division (e.g., `chapter` or `subsection`), or `all` or `none`. For example, `\settocdepth{section}` will set *tocdepth* to be 1 within the `.toc` file, until it is altered by another `\settocdepth` command. The command cannot be used in the preamble (i.e., before `\begin{document}`), but can be used any point thereafter.

tocdepth should be set in the preamble, or immediately after, to the least significant sectional unit that should be in the printed ToC. Later, after the `\tableofcontents` command, it is possible to to use `\settocdepth` to change *tocdepth* to a different sectional level.

`\resettocdepth` After *tocdepth* has been changed with `\settocdepth`, it is possible to reset it to its previous value with `\resettocdepth`. In fact, you may use `\resettocdepth` multiple times to reset multiple uses of `\settocdepth`. (It behaves like a stack, for you computer-science-types.) If you wish to reset *tocdepth* to its original value completely, use `\resettocdepth*`.

As an example, assume that the ToC should list subsections and above, but there is one particular section in the document which consists of a set of definitions,

each of which is presented as a subsection, but these should not appear in the printed ToC.

```
\documentclass{...}
\usepackage{tocvsec2}
...
\begin{document}
      \maxtocdepth{subsection}
...
\tableofcontents
...
\section{Definitions}
      \settocdepth{section}
\subsection{Definition 1}
 ...
      \resettocdepth %% equivalent to "\settocdepth{subsection}"
\section{After definitions}
...
```

3 Changing section numbering

`\setsecnumdepth` The `\setsecnumdepth{`⟨*sec*⟩`}` command is similar to `\settocdepth` except that it changes the value of *secnumdepth* at the point in the document where it is called. Like the `\settocdepth` command, it cannot be used in the preamble, but can be used as often as necessary after that.

`\maxsecnumdepth` The `\maxsecnumdepth{`⟨*sec*⟩`}` command is similar to `\maxtocdepth` except that it is for setting the default value for *secnumdepth* after the preamble. In previous versions of the package if you used `\setsecnumdepth` for this purpose you might find an extra blank page in the typeset manuscript, but nowadays the two commands are interchangeable.

`\resetsecnumdepth` Similarly to `\resettocdepth`, this command cycles back through previous values for *secnumdepth* so you don't have to keep track of them yourself if you need to change its value for only a short component of a manuscript. By writing `\resetsecnumdepth*`, you can reset entirely back to a clean state with *secnumdepth* set to its original value.

For example, assume that in a document the sectional divisions are normally numbered down to the sub-subsection level, but within a particular section, they should only be numbered to the subsection level. Also, all sectional divisions within the appendices are to be numbered. This can be accomplished like:

```
\documentclass{...}
\usepackage{tocvsec2}
...
\begin{document}
      \maxsecnumdepth{subsubsection}
...
\tableofcontents
```

```
...
\section{Normal section}
...
\section{Reduce numbering}
      \setsecnumdepth{subsection}
...
      \resetsecnumdepth %% equivalent to "\setsecnumdepth{subsubsection}"
\section{Another normal section}
 ...
\appendix
      \setsecnumdepth{all}
...
```

4 The package code

```
⟨*usc⟩
\RequirePackage{ifthen}
```

In order to try and avoid name clashes with other packages, each internal name will include the character string `t@c`.

Issue warning if there are no recognized sectional divisions.

```
\newif\ift@cchapter
  \t@cchapterfalse
\@ifundefined{chapter}{%
  \@ifundefined{section}{%
    \PackageWarning{tocvsec2}{%
       I don't recognize any divisions but I'll do my best}}{}%
  {\t@cchaptertrue}

```

`\if@knownsect@c` `\@setseccntt@c` A helper macro to set a sectioning-related counter. Call as `\@setseccntt@c{`⟨*sec*⟩`}{`⟨*counter*⟩`}` to set *counter* to the level of ⟨*sec*⟩.

```
\newif\if@knownsect@c
\newcommand{\@setseccntt@c}[2]{
  \@knownsect@cfalse
  \ifthenelse{\equal{#1}{none}}{\setcounter{#2}{-10}
                                \@knownsect@ctrue}{}
  \ifthenelse{\equal{#1}{part}}{\ift@cchapter
                                  \setcounter{#2}{-1}
                                \else
                                  \setcounter{#2}{0}
                                \fi
                                \@knownsect@ctrue}{}
  \ifthenelse{\equal{#1}{chapter}}{\setcounter{#2}{0}
                                   \@knownsect@ctrue}{}
  \ifthenelse{\equal{#1}{section}}{\setcounter{#2}{1}
                                   \@knownsect@ctrue}{}
  \ifthenelse{\equal{#1}{subsection}}{\setcounter{#2}{2}
```

```
                                        \@knownsect@ctrue}{}
  \ifthenelse{\equal{#1}{subsubsection}}{\setcounter{#2}{3}
                                          \@knownsect@ctrue}{}
  \ifthenelse{\equal{#1}{paragraph}}{\setcounter{#2}{4}
                                       \@knownsect@ctrue}{}
  \ifthenelse{\equal{#1}{subparagraph}}{\setcounter{#2}{5}
                                         \@knownsect@ctrue}{}
  \ifthenelse{\equal{#1}{all}}{\setcounter{#2}{100}
                                  \@knownsect@ctrue}{}
  \if@knownsect@c\else
    \PackageError{tocvsec2}{%
      Unknown sectioning command name (#1)
    }{%
      I'll ignore it. Type \space <return> and I'll continue.\MessageBreak
      If you haven't mistyped the name then use \protect\setcounter\space instead.}
  \fi
}
```

`\settocdepth` `\settocdepth{`⟨*sec*⟩`}` is the user command for setting *tocdepth* in the `.toc` file to the value corresponding to ⟨*sec*⟩.

```
\newcommand{\settocdepth}[1]{%
  \@knownsect@cfalse
  \ifthenelse{\equal{#1}{none}}{%
    \addtocontents{toc}{\save@tocdepth\protect\setcounter{tocdepth}{-10}}
    \@knownsect@ctrue}{}
  \ifthenelse{\equal{#1}{part}}{%
    \ift@cchapter
      \addtocontents{toc}{\save@tocdepth\protect\setcounter{tocdepth}{-1}}
    \else
      \addtocontents{toc}{\save@tocdepth\protect\setcounter{tocdepth}{0}}
    \fi
    \@knownsect@ctrue}{}
  \ifthenelse{\equal{#1}{chapter}}{%
    \addtocontents{toc}{\save@tocdepth\protect\setcounter{tocdepth}{0}}
    \@knownsect@ctrue}{}
  \ifthenelse{\equal{#1}{section}}{%
    \addtocontents{toc}{\save@tocdepth\protect\setcounter{tocdepth}{1}}
    \@knownsect@ctrue}{}
  \ifthenelse{\equal{#1}{subsection}}{
    \addtocontents{toc}{\save@tocdepth\protect\setcounter{tocdepth}{2}}
    \@knownsect@ctrue}{}
  \ifthenelse{\equal{#1}{subsubsection}}{%
    \addtocontents{toc}{\save@tocdepth\protect\setcounter{tocdepth}{3}}
    \@knownsect@ctrue}{}
  \ifthenelse{\equal{#1}{paragraph}}{%
    \addtocontents{toc}{\save@tocdepth\protect\setcounter{tocdepth}{4}}
    \@knownsect@ctrue}{}
  \ifthenelse{\equal{#1}{subparagraph}}{%
    \addtocontents{toc}{\save@tocdepth\protect\setcounter{tocdepth}{5}}
    \@knownsect@ctrue}{}
```

```
  \ifthenelse{\equal{#1}{all}}{%
    \addtocontents{toc}{\save@tocdepth\protect\setcounter{tocdepth}{100}}
    \@knownsect@ctrue}{}
  \if@knownsect@c\else
    \PackageError{tocvsec2}{%
      Unknown sectioning command name (#1)}%
     {I'll ignore it. Type \space <return> and I'll continue.}
  \fi
}
```

`\maxtocdepth` `\maxtocdepth{`⟨*sec*⟩`}` can be used to initialise *tocdepth* between the end of the preamble and the `\tableofcontents` command.

```
\newcounter{max@tocdepth}
\setcounter{max@tocdepth}{\value{tocdepth}}
\newcommand{\maxtocdepth}[1]{%
  \save@tocdepth
  \@setseccntt@c{#1}{max@tocdepth}%
  \@setseccntt@c{#1}{tocdepth}%
}
```

`\tableofcontents`

```
\g@addto@macro\tableofcontents{%
  \setcounter{tocdepth}{\value{max@tocdepth}}%
}
```

`\setsecnumdepth` `\setsecnumdepth{`⟨*sec*⟩`}` is the user command for setting *secnumdepth* to the value corresponding to ⟨*sec*⟩.

```
\newcommand{\setsecnumdepth}[1]{%
  \save@secnumdepth
  \@setseccntt@c{#1}{secnumdepth}}
```

`\maxsecnumdepth` `\maxsecnumdepth{`⟨*sec*⟩`}` is the user command to initialise *secnumdepth* after the preamble to the value corresponding to ⟨*sec*⟩.

```
\newcounter{max@secnumdepth}
\setcounter{max@secnumdepth}{\value{secnumdepth}}
\newcommand{\maxsecnumdepth}[1]{%
  \save@secnumdepth
  \@setseccntt@c{#1}{max@secnumdepth}%
  \@setseccntt@c{#1}{secnumdepth}%
}
```

4.1 Resetting and returning to previous values

`\resetsecnumdepth` It would be nice to be able to 'reset' the tocdepth or secnumdepth to a previous value. Unfortunately this can't be done with grouping so we use a stack-based approach.

```
\let\stack@secnumdepth\@empty
\newcommand\save@secnumdepth{%
```

```
  \edef\stack@secnumdepth{\the\c@secnumdepth\relax\stack@secnumdepth}%
}
\def\gobble@secnumdepth#1\@nil{\edef\stack@secnumdepth{#1}}
```

The idea of the stack is {x_n\relax x_{n-1}\relax $\ldots x_0$\relax}; prepending new values with \edef and using assignment and \afterassignment to push an entry off the front.

```
\newcommand\resetsecnumdepth{%
  \@ifstar{%
    \setcounter{secnumdepth}{\value{max@secnumdepth}}%
    \edef\stack@secnumdepth{\the\c@secnumdepth\relax}%
  }{%
    \ifx\stack@secnumdepth\@empty
      \PackageWarning{tocvsec2}{There is no previous value for secnumdepth}%
    \else
      \afterassignment\gobble@secnumdepth
      \expandafter\c@secnumdepth\expandafter\numexpr\stack@secnumdepth\@nil
    \fi
  }
}
```

\resettocdepth The idea the same is as above but because it all happens inside an auxiliary file there's a couple of extra steps.

```
\let\stack@tocdepth\@empty
\protected\def\save@tocdepth{%
  \edef\stack@tocdepth{\the\c@tocdepth\relax\stack@tocdepth}%
}
\def\gobble@tocdepth#1\@nil{\edef\stack@tocdepth{#1}}
```

Resetting is done in the .toc file:

```
\newcommand\resettocdepth{\@ifstar
  {\addtocontents{toc}{\remax@tocdepth}}
  {\addtocontents{toc}{\reset@tocdepth}}%
}
```

Reset back to the initial state (and clear the stack):

```
\protected\def\remax@tocdepth{%
  \setcounter{tocdepth}{\value{max@tocdepth}}%
  \edef\stack@secnumdepth{\the\c@tocdepth\relax}%
}
```

Reset to the previous state on the stack:

```
\protected\def\reset@tocdepth{%
  \ifx\stack@tocdepth\@empty
    \PackageWarning{tocvsec2}{There is no previous value for tocdepth}%
  \else
    \afterassignment\gobble@tocdepth
    \expandafter\c@tocdepth\expandafter\numexpr\stack@tocdepth\@nil
  \fi
}
```

Ensure errant commands in the ToC won't cause problems:

```
\addtocontents{toc}{%
  \@ifundefined{save@tocdepth}{%
    \let\save@tocdepth\relax
    \let\reset@tocdepth\relax
    \let\remax@tocdepth\relax
  }{}%
}
```

The end of this package.

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References

[GMS94] Michel Goossens, Frank Mittelbach, and Alexander Samarin. *The LaTeX Companion*. Addison-Wesley Publishing Company, 1994.

[Wil96] Peter R. Wilson. *LaTeX for standards: The LaTeX package files user manual*. NIST Report NISTIR, June 1996.

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