The romannum package*

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Abstract

The romannum package changes the numbers generated by LaTeX from arabic digits to roman numerals. The package uses the stdclsdv package.

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1 Introduction

LaTeX generates numbers for things like chapters and sections, figure and table captions, and page numbers. Normally these are printed using arabic digits. The romannum package modifies the typesetting of such generated numbers so that they are printed as roman numerals.

This manual is typeset according to the 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 3.

2 The romannum package

Using the romannum package, numbers that LaTeX generates will be typeset as lowercase roman numerals. For example, 'iv' instead of 4.

The following options change the generated numbers from arabic to roman:

*This file (`romannum.dtx`) has version number v1.0b, last revised 2009/09/03.

Section Sectional numbers in uppercase roman.

section Sectional numbers in lowercase roman.

Equation Equation numbers in uppercase roman.

equation Equation numbers in lowercase roman.

Caption Table and Figure caption numbers in uppercase roman.

caption Table and Figure caption numbers in lowercase roman.

Footnote Footnote numbers in uppercase roman.

footnote Footnote numbers in lowercase roman.

Enumerate First level items in uppercase roman and third level items in lowercase roman.

enumerate First level items in lowercase roman and third level items in uppercase roman.

Year The year number from the `\today` command in uppercase roman.

Day The year number from the `\today` command in uppercase roman and the day number in uppercase roman.

day The year number from the `\today` command in uppercase roman and the day number in uppercase roman.

Most A shorthand option equivalent to using all these options: Section, Equation, Caption, Footnote, Enumerate; that is, all the uppercasing options except for Year and Day.

most A shorthand option equivalent to using all these options: section, equation, caption, footnote, enumerate; that is, all the lowercasingcasing options except for day.

Note that the `\today`-related options are implemented by redefining the `\today` command. If any of these options are used together with another package that also redefines the `\today` command, then surprising effects may occur.

The package sets the the pagenumbering to be `\pagenumbering{roman}` at the start of the document. This can always be changed after the `\begin{document}` command.

Generally speaking, a number typeset using roman numerals requires more space than if it was typeset using arabic digits. If roman numbering is used for sectional headings, captions, or page numbers, it is probable that the space allowed for numbers in the Table of Contents, and the Lists of Figures and Tables, will need to be increased. The amount of increase will depend on the longest (not necessarily the largest) roman number to be printed. The romannum package makes no such adjustments; I suggest that the tocloft package be used for this [Wil99].

\Romannum The command \Romannum{⟨*integer*⟩} typesets ⟨*integer*⟩ using uppercase roman numerals. Strictly speaking, the roman numbering system system does not cater for numbers less than 1 (i.e., zero or negative numbers), however the command does what might be expected for zero and negative numbers. As normal with a LaTeX command it gobbles any following space, so if you need a space after the number, use either of the forms shown below:

```
\Romannum{1}{} and \Romannum{2}\ make \Romannum{3}.
```

The ⟨*integer*⟩ argument must be either arabic digits or a command that expands solely to arabic digits (possibly preceeded by a minus sign).

\romannum The command \romannum{⟨*integer*⟩} typesets ⟨*integer*⟩ using lowercase roman numerals. It is the analogue of \Romannum.

3 The package code

Announce the name and version of the package, which requires LaTeX 2ε and the stdclsdv package.

```
⟨*usc⟩
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{romannum}[2009/09/03 v1.0b roman numerals]
\RequirePackage{stdclsdv}
```

To try and avoid name clashes with other packages, the internal commands all contain the character string rn@m.

\ifrn@mYear \ifrn@mDay \ifrn@mday We need some booleans for the date related options.

```
\newif\ifrn@mYear \rn@mYearfalse
\newif\ifrn@mDay \rn@mDayfalse
\newif\ifrn@mday \rn@mdayfalse
```

Do the options. First for changing the sectioning numbers. The Part number is already in uppercase roman, so this is left alone.

```
\DeclareOption{Section}{%
  \ifSCDchapter
    \renewcommand{\thechapter}{\Roman{chapter}}
    \renewcommand{\thesection}{\thechapter.\Roman{section}}
  \else
    \renewcommand{\thesection}{\Roman{section}}
  \fi
  \renewcommand{\thesubsection}{\thesection.\Roman{subsection}}
  \renewcommand{\thesubsubsection}{\thesubsection.\Roman{subsubsection}}
  \renewcommand{\theparagraph}{\thesubsubsection.\Roman{paragraph}}
  \renewcommand{\thesubparagraph}{\theparagraph.\Roman{subparagraph}}
}
\DeclareOption{section}{%
  \ifSCDchapter
```

```
    \renewcommand{\thechapter}{\roman{chapter}}
    \renewcommand{\thesection}{\thechapter.\roman{section}}
  \else
    \renewcommand{\thesection}{\roman{section}}
  \fi
  \renewcommand{\thesubsection}{\thesection.\roman{subsection}}
  \renewcommand{\thesubsubsection}{\thesubsection.\roman{subsubsection}}
  \renewcommand{\theparagraph}{\thesubsubsection.\roman{paragraph}}
  \renewcommand{\thesubparagraph}{\theparagraph.\roman{subparagraph}}
}
```

The equation numbering.

```
\DeclareOption{Equation}{%
  \ifSCDchapter
    \renewcommand{\theequation}%
      {\ifnum \c@chapter>\z@ \thechapter.\fi \Roman{equation}}
  \else
    \renewcommand{\theequation}{\Roman{equation}}
  \fi
}
\DeclareOption{equation}{%
  \ifSCDchapter
    \renewcommand{\theequation}%
      {\ifnum \c@chapter>\z@ \thechapter.\fi \roman{equation}}
  \else
    \renewcommand{\theequation}{\roman{equation}}
  \fi
}
```

The captions.

```
\DeclareOption{Caption}{%
  \ifSCDchapter
    \renewcommand{\thefigure}%
      {\ifnum \c@chapter>\z@ \thechapter.\fi \Roman{figure}}
    \renewcommand{\thetable}%
      {\ifnum \c@chapter>\z@ \thechapter.\fi \Roman{table}}
  \else
    \renewcommand{\thefigure}{\Roman{figure}}
    \renewcommand{\thetable}{\Roman{table}}
  \fi
}
\DeclareOption{caption}{%
  \ifSCDchapter
    \renewcommand{\thefigure}%
      {\ifnum \c@chapter>\z@ \thechapter.\fi \roman{figure}}
    \renewcommand{\thetable}%
      {\ifnum \c@chapter>\z@ \thechapter.\fi \roman{table}}
  \else
    \renewcommand{\thefigure}{\roman{figure}}
    \renewcommand{\thetable}{\roman{table}}
  \fi
```

```
}
```

The footnote.

```
\DeclareOption{Footnote}{%
  \renewcommand{\thefootnote}{\Roman{footnote}}
}
\DeclareOption{footnote}{%
  \renewcommand{\thefootnote}{\roman{footnote}}
}
```

The enumerate. Two of `enumerate` environment numbers need changing. First level enumerations are normally arabic digits, and the third level are normally lowercase roman. These get changed to lowercase and uppercase roman.

```
\DeclareOption{Enumerate}{%
  \renewcommand{\theenumi}{\Roman{enumi}}
  \renewcommand{\theenumiii}{\roman{enumiii}}
}
\DeclareOption{enumerate}{%
  \renewcommand{\theenumi}{\roman{enumi}}
  \renewcommand{\theenumiii}{\Roman{enumiii}}
}
```

The date related options.

```
\DeclareOption{Year}{\rn@mYeartrue}
\DeclareOption{Day}{\rn@mDaytrue\rn@mYeartrue\rn@mdayfalse}
\DeclareOption{day}{\rn@mDayfalse\rn@mYeartrue\rn@mdaytrue}
```

The most options.

```
\DeclareOption{Most}{%
  \ExecuteOptions{Section,Equation,Caption,Footnote,Enumerate}
}
\DeclareOption{most}{%
  \ExecuteOptions{section,equation,caption,footnote,enumerate}
}
```

Now we can process the options.

```
\ProcessOptions\relax
```

\theday
\theyear
\today

Change the date related numerals, if asked for. This involves redefining the `\today` command.

```
\ifrn@mYear
  \newcommand{\thern@myear}{\@Roman\year}
  \ifrn@mDay
    \newcommand{\thern@mday}{\@Roman\day}
  \else
    \ifrn@mday
      \newcommand{\thern@mday}{\@roman\day}
    \else
      \newcommand{\thern@mday}{\@arabic\day}
    \fi
  \fi
```

```
\edef\today{\ifcase\month\or
  January\or February\or March\or April\or May\or June\or
  July\or August\or September\or October\or November\or December\fi
  \space\thern@mday, \thern@myear}
\fi
```

`\romannum` `\romannum{`⟨*integer*⟩`}` typesets ⟨*integer*⟩ using lowercase roman numerals. The basic code for this is in the TEXbook on pages 40–41. I have added code to handle the cases of zero and negative integers.

```
\newcommand{\romannum}[1]{%
  \ifnum#1<1
    \ifnum#1=0
      o%
    \else
      -\romannumeral -#1%
    \fi
  \else
    \romannumeral #1%
  \fi}
```

`\Romannum` Having got `\romannum`, this is easy.

```
\DeclareRobustCommand{\Romannum}[1]{\MakeUppercase{\romannum{#1}}}
```

Finally, make the default page numbering lowercase roman.

```
\AtBeginDocument{\pagenumbering{roman}}
```

The end of this package.

```
⟨/usc⟩
```

References

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

[Wil99] Peter R. Wilson. *The TOCLOFT package*. 1999. (Available from CTAN in `macros/latex/contrib/supported`)

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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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