# The tutodoc package - Tutorial-style documentation

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#### Abstract

The tutodoc package <sup>1</sup> is used by its author to semantically produce documentation of LATEX packages and classes in a tutorial style, <sup>2</sup> and with a sober rendering for reading on screen.

Two important points to note.

- This package imposes a formatting style. In the not-too-distant future, tutodoc will probably be split into a class and a package.
- This documentation is also available in French.

<sup>&</sup>lt;sup>1</sup>The name comes from " $tuto \cdot rial \cdot type \ doc \cdot umentation$ ".

<sup>&</sup>lt;sup>2</sup>The idea is to produce an efficient PDF file that can be browsed for one-off needs. This is generally what is expected of coding documentation.

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# I. General formatting imposed

# 1. Page geometry

The geometry package is loaded with the following settings.

#### 2. Title and table of contents

The titlesec and tocbasic packages are set as follows.

```
\RequirePackage[raggedright]{titlesec}
\ifcsundef{chapter}%
          {}%
          {\renewcommand\thechapter{\Alph{chapter}.}}
\renewcommand\thesection{\Roman{section}.}
\renewcommand\thesubsection{\arabic{subsection}.}
\renewcommand\thesubsubsection{\roman{subsubsection}.}
\titleformat{\paragraph}[hang] %
            {\normalfont\normalsize\bfseries}%
            {\theparagraph}{1em}%
            {}
\titlespacing*{\paragraph}%
              {0pt}%
              {3.25ex plus 1ex minus .2ex}%
              \{0.5em\}
% Source
* https://tex.stackexchange.com/a/558025/6880
\DeclareTOCStyleEntries[
 raggedentrytext,
 linefill = \hfill,
 indent = Opt,
 dynindent,
 numwidth = Opt,
 numsep = 1ex,
 dynnumwidth
]{tocline}{
 chapter,
 section,
 subsection,
 subsubsection,
 paragraph,
 subparagraph
\DeclareTOCStyleEntry[indentfollows = chapter]{tocline}{section}
```

### 3. Dynamic links

The hyperref package is imported behind the scenes with the settings below.

```
\hypersetup{
  colorlinks,
  citecolor = orange!75!black,
  filecolor = orange!75!black,
  linkcolor = orange!75!black,
  urlcolor = orange!75!black
}
```

# II. Select language when loading package

By default, tutodoc is set for English, but it is possible to change the language: for example, a French documentation will use \usepackage[lang = french] {tutodoc} . For the moment, we only have the following two choices.

- 1. english is the default value.
- 2. french

### i Note.

Language names are those suggested by the babel package.

# III. What does that mean in "English"?

The macro \tdocinEN and its starred version are useless for English speakers because they have the following effects.

```
Cool and top stand for \tdocinEN*{cool} and \tdocinEN{top}.

Cool and top stand for "cool" and "top" in english.
```

The macro \tdocinEN and its starred version are based on \tdocquote: for example, "semantic" is obtained via tdocquote{semantic}.

#### i Note.

As the text "in English" is translated into the language indicated when tutodoc is imported, the macro \tdocineN and its starred version become useful for non-English speakers.

# IV. Highlighting content

# i Note.

The environments presented in this section <sup>a</sup> add a short title indicating the type of information provided. This short text will always be translated into the language indicated when the tutodoc package is loaded.

 $^a{\rm The}$  formatting comes from the  ${\tt keytheorems}$  package.

### 1. Content in the reading flow



#### Important.

All the environments presented in this section share the same counter.

#### i. Examples

Numbered examples, if required, are indicated via \begin{tdocexa} ... \end{tdocexa}, which offers an optional argument for adding a mini-title. Here are two possible uses.

\begin{tdocexa}
An example...
\end{tdocexa}

\begin{tdocexa}
Example IV.1. An example...

\begin{tdocexa} [Mini title]
Useful?
\end{tdocexa}

#### Important.

The numbering of the examples is reset to zero as soon as a section with a level at least equal to a \section is opened.

# Tip.

It can sometimes be useful to return to the line at the start of the content. The code below shows how to proceed (this trick also applies to the tdocrem environment presented next). Note in passing that the numbering follows that of the previous example as desired.

\begin{tdocexa}     \leavevmode     \begin{enumerate}     \item Point 1.	Example IV.3.  1. Point 1.
\item Point 2. \end{enumerate} \end{tdocexa}	2. Point 2.

#### ii. Some remarks

Everything happens via \begin{tdocrem} ...\end{tdocrem}, which works identically to the tdocexa environment, as shown in the following example.

begin{tdocrem}
 Just one remark...
\end{tdocrem}

kbegin{tdocrem}
 Remark IV.4. Just one remark...

kbegin{tdocrem}
 Remark IV.5. Another?

kend{tdocrem}

kemark IV.6 (Mini title). Useful?

begin{tdocrem} (Mini title)
 Useful?

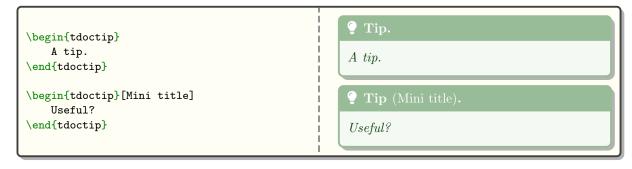
end{tdocrem}

### 2. Flashy content



#### i. A tip

The tdoctip environment is used to give tips. Here's how to use it.

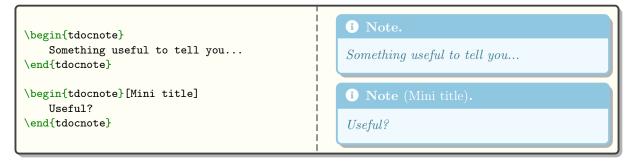


### i Note.

Colors are obtained via the expandable macros \tdocbackcolor and \tdocdarkcolor. For further information, please refer to the end of the section 1. page 8.

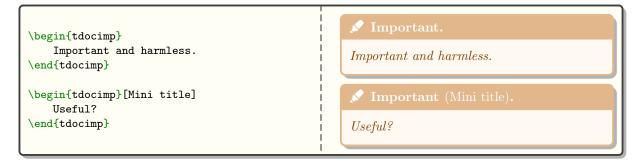
#### ii. Informative note

The tdocnote environment is used to highlight useful information. Here's how to use it.



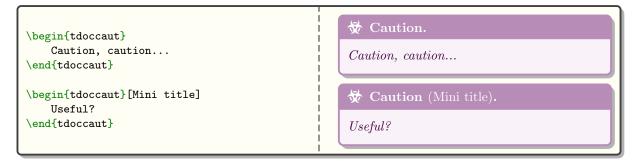
#### iii. Something important

The tdocimp environment is used to indicate something important but harmless.



#### iv. Caution about a delicate point

The tdoccaut environment is used to indicate a delicate point to the user. Here's how to use it.



#### v. Warning of danger

The tdocwarn environment is used to warn the user of a trap to avoid. Here's how to use it.

```
\begin{tdocwarn}
Avoid the dangers...
\end{tdocwarn}
\begin{tdocwarn} [Mini title]
Useful?
\end{tdocwarn}

\text{Warning.}

Avoid the dangers...

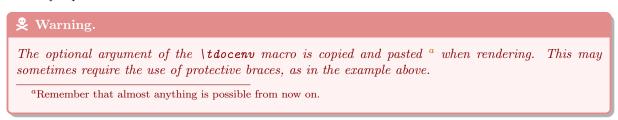
\text{\Left} \text{\Left} \text{Warning (Mini title).}
\text{\Left} \text{Useful?}
```

# V. Specify packages, classes, macros or environments

Here's what you can type semantically.

```
myclass is for...
\tdoccls{myclass} is for...
                                           //
                                                    mypackage is for...
\tdocpack{mypackage} is for...
                                           //
\tdocmacro{onemacro} is for...
                                           11
                                                    \onemacro is for...
\tdocenv{env} produces...
                                                    \begin{env} ...\end{env} produces...
                                           //
\tdocenv[{[opt1]<opt2>}]{env}
                                                    \begin{env}[opt1] < opt2> ... \end{env}
Just \tdocenv*{env}...
                                                    Just env...
Finally \tdocenv*[{[opt1]<opt2>}]{env}..
                                                    Finally env...
```

Remark V.1. Unlike \tdocinlatex, \tdocenv and \tdocenv\* macros don't color the text they produce. In addition, \tdocenv{monenv} produces \begin{monenv} ... \end{monenv} with spaces to allow line breaks if required.



# VI. Origin of a prefix or suffix

To explain the names chosen, there is nothing like indicating and explaining the short prefixes and suffixes used. This is easily done as follows.

```
\tdocpre{sup} relates to...
sup relates to...

\tdocprewhy{sup.erbe} means...
sup·erbe means...

\emph{\tdocprewhy{sup.er} for...}
sup·er for...
```

Remark VI.1. The choice of a full stop to split a word allows words with a hyphen to be used, as in \tdocprewhy{bric.k-breaker} which gives bric.k-breaker.

# VII. A real-life rendering

It is sometimes useful to render code directly in the documentation. This type of rendering must be dissociable from the explanatory text.

#### 1. With a coloured stripe

**Example VII.1** (With default text). It can be useful to show a real rendering directly in a document. <sup>3</sup> This is done via \begin{tdocshowcase} ... \end{tdocshowcase} as follows.

```
| begin{tdocshowcase}
| bfseries A bit of code \LaTeX.
| bigskip
| \emph{\large End of the awful demo.}
| \end{tdocshowcase}
```

The result is the following rendering. <sup>4</sup>

Start of the real output

A bit of code LATEX.

End of the awful demo.

■ End of the real output

Remark VII.2. See the section 4. on page 12 to easily obtain code followed by its actual rendering as in the previous example.

i Note.

The explanatory texts adapt to the language chosen when tutodoc is loaded.

**Example VII.3** (Change the default colour and/or text).

This will produce the following.

 $<sup>^3</sup>$ Typically when making a demo.

<sup>&</sup>lt;sup>4</sup>Behind the scenes, the strip is created effortlessly using the clrstrip package.

#### i Note.

You've probably noticed that red is used as a base to obtain the colors used.

- The background color is provided by \tdocbackcolor.
- The color of titles and lines is provided by \tdocdarkcolor.

These expandable macros accept the following codes.

You also have to know that behind the scene, the \tdocruler macro is used.

```
\tdocruler{A decorated pseudo-title}{red}

A decorated pseudo-title
```

# & Warning.

With the default settings, if the code to be formatted begins with an opening bracket, use  $\slash$  string as in the following example.

```
\begin{tdocshowcase}
\string[This works...]
\end{tdocshowcase}
```

This will produce the following.

	Start of the real output
[This works]	
	End of the real output

# 2. Without a colour strip

The rendering of \begin{tdocshowcase} ...\end{tdocshowcase} with a coloured strip may not be suitable, or sometimes may not be acceptable despite the work done by clrstrip. It is possible not to use a coloured strip, as we will see straight away.

Example VII.4. The use of  $\begin{tabular}{l} begin{tabular}{l} tabular begin{tabular}{l} tabul$ 

This will produce the following.

Start of the real output

Example VII.5 (Change the default colour and/or text).

This will produce the following.

My beginning

-My end

# 3. By importing the LATEX code

To obtain renderings by importing the code from an external file, instead of typing it, simply use the \tdocshowcaseinput macro whose option uses the syntax of that of \begin{tdocshowcase} ... \end{tdocshowcase} and the mandatory argument corresponds to the path of the file.

**Example VII.6.** The following was obtained via \tdocshowcaseinput{external.tex}.

Blablobli, blablobli, blablobli, blablobli, blablobli...

End of the real output

As for \tdocshowcaseinput[color = orange]{external.tex}, this will produce the colour change shown below.

Start of the real output

Blablobli, blablobli, blablobli, blablobli, blablobli...

End of the real output

# VIII. Use cases in LATEX

Documenting a package or class is best done through use cases showing both the code and the corresponding result.  $^5$ 

### **☆** Caution.

Version 3 of minted cannot be used at the moment, as it contains bugs: see <a href="https://github.com/gpoore/minted/issues/401">https://github.com/gpoore/minted/issues/401</a>. We therefore force the use of version 2 of minted.

### 1. "Inline" codes

The \tdocinlatex macro <sup>6</sup> can be used to type inline code in a similar way to \verb. Here are some examples.

```
1: \tdocinlatex|\$a^b = c\$|
2: \tdocinlatex+\tdocinlatex|\$a^b = c\$|
2: \tdocinlatex|\$a^b = c\$|
```

<sup>&</sup>lt;sup>5</sup>Code is formatted using the minted package.

<sup>&</sup>lt;sup>6</sup>The name of the macro \tdocinlatex comes from "in·line LATEX".

### i Note.

The \tdocinlatex macro can be used in a footnote: see below. a In addition, a background color is deliberately used to subtly highlight the codes \LaTeX.

\*minted = TOP\$ has been typed \tdocinlatex+\$minted = TOP\$+ in this footnote...

### 2. Directly typed codes

Example VIII.1 (Side by side). Using \begin{tdoclatex}[sbs]...\end{tdoclatex}, we can display a code and its rendering side by side. Consider the following code.

```
\begin{tdoclatex}[sbs]

$A = B + C$
\end{tdoclatex}
```

This will produce the following.

```
\$A = B + C\$
```

Example VIII.2 (Following). \begin{tdoclatex} ... \end{tdoclatex} produces the following result, which corresponds to the default option std . <sup>7</sup>

```
A = B + C
A = B + C
```

Example VIII.3 (Just the code). Via \begin{tdoclatex}[code] ... \end{tdoclatex}, we'll just get the code as shown below.

```
$A = B + C$
```

### Warning.

With default formatting, if the code begins with an opening bracket, the default option must be explicitly indicated. Consider the following code.

```
\begin{tdoclatex}[std]
    [Strange... Or not!]
\end{tdoclatex}
```

This will produce the following.

```
[Strange... Or not!]
[Strange... Or not!]
```

Another method is to use the \string primitive. Consider the following code.

```
\begin{tdoclatex}
\string[Strange... Or not!]
\end{tdoclatex}
```

This will produce the following.

<sup>&</sup>lt;sup>7</sup> std refers to the "standard" behaviour of tcolorbox in relation to the minted library.

```
[Strange... Or not!]
```

### 3. Imported codes

For the following codes, consider a file with the relative path examples-listing-xyz.tex, and with the following contents.

```
% Just one demo.
$x y z = 1$
```

The \tdoclatexinput macro, shown below, expects the path of a file and offers the same options as the tdoclatex environment.

Example VIII.4 (Side by side).

```
\ttdoclatexinput[sbs]{examples-listing-xyz.tex}
```

This produces the following layout.

Example VIII.5 (Following).

This produces the following formatting where the default option is std.

```
% Just one demo. \$x\ y\ z=1\$ xyz=1
```

Example VIII.6 (Just the code).

```
\to clatexinput[code] {examples-listing-xyz.tex}
```

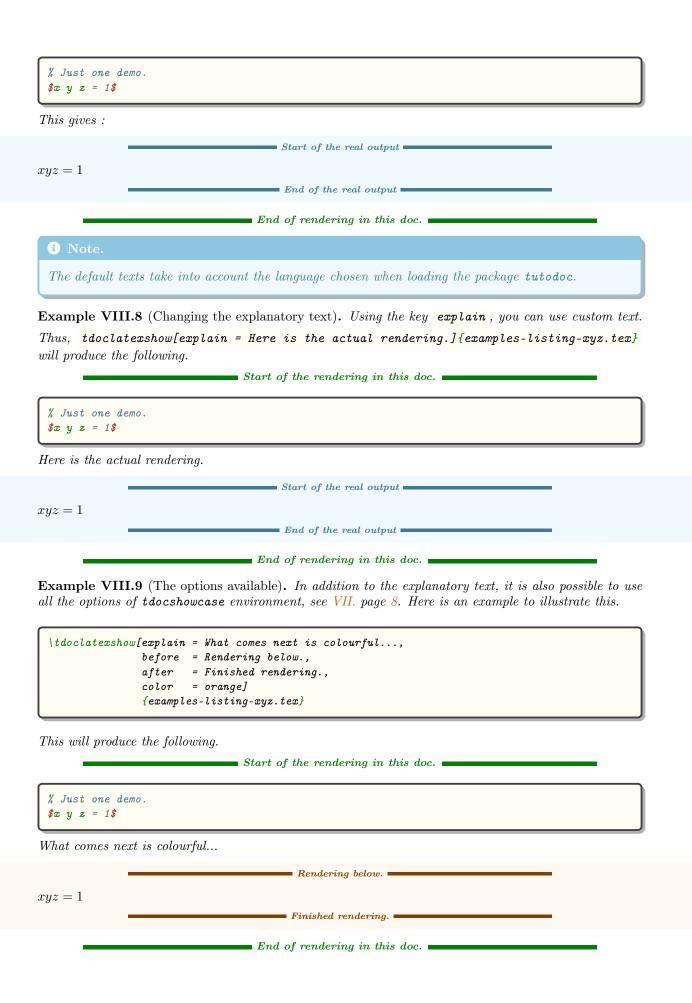
This produces the following layout.

```
% Just one demo.
$x y z = 1$
```

# 4. Imported codes put into practice

 $\textbf{Example VIII.7 (Showcase).} \ \textit{The following comes from $$ \toological textbooks (examples-listing-xyz.tex$} \ .$ 

Start of the rendering in this doc.



# IX. Indicate changes

To make it easier to monitor a package, it is essential to provide a history indicating the changes made when a new version is published.

#### 1. When?

You can either date something, or version it, in which case the version number can be dated.

**Example IX.1** (Dating new products). The \tdocdate macro is used to indicate a date in the margin, as in the following example.

This gives:

2023-09-24

2020-05-08

**Example IX.2** (Versioning new features, possibly with a date). Associating a version number with a new feature is done using the \tag{tdocversion} macro, with the colour and date being optional arguments.

■ End of the real output ■

■ Start of the real output ■

This gives:

10.2.0-beta 2023-12-01

10.2.0-alpha

■ End of the real output ■

### Important.

- 1. The \tdocdate and \tdocversion macros require two compilations.
- 2. The final rendering of the dates takes into account the language specified when loading the package tutodoc: for example, if French is selected, the dates will be displayed in the format DD/MM/YYYY.

### & Warning.

Only the use of the digital format YYYY-MM-DD is verified.  $^a$ , and this is a choice! Why? Quite simply because dating and versioning explanations should be done semi-automatically to avoid any human bugs.

<sup>a</sup>Technically, checking the validity of a date using LATEX3 presents no difficulty.

#### 2. What's new?

 ${\tt tutodoc~offers~the~macro~ \backslash tdocstartproj~and~different~environments~to~indicate~quickly~and~clearly~what~has~been~done~during~the~latest~changes.}^8$ 

#### i Note.

For icons, see the note at the beginning of the section 2. page 6.

Example IX.3 (Just for the very first version).

Example IX.4 (For new features).

\begin{tdocnew}	♦ NEW.
\item Info 1\item Info 2	• Info 1
\end{tdocnew}	• Info 2

### Example IX.5 (For updates).

\begin{tdocupdate}	₩ UPDATE.
\item Info 1\item Info 2	• Info 1
$end\{tdocupdate\}$	• Info 2

#### Example IX.6 (For breaks).

<sup>&</sup>lt;sup>8</sup>The user doesn't need all the technical details.

\begin{tdocbreak}	₽ Break.
\item Info 1 \item Info 2	• Info 1
\end{tdocbreak}	• Info 2

### Example IX.7 (For problems).

\begin{tdocprob}	O Problem.
\item Info 1 \item Info 2	• Info 1
\end{tdocprob}	• Info 2

# Example IX.8 (For fixes).

\begin{tdocfix}	<b>≯</b> FIX.
\item Info 1\ \item Info 2	• Info 1
\end{tdocfix}	• Info 2

### Example IX.9 (Selectable themes with an icon).

# Example IX.10 (Selectable themes without icons).

\begin{tdoctopic}{End of icons}	End of icons.
\item Info 1 \item Info 2	• Info 1
\end{tdoctopic}	• Info 2

# X. Ornaments

Let's finish this documentation with a small formatting tool that is very useful.

Bla, bla, bla \tdocsep % Practical for demarcation.	Bla, bla, bla
This works with enumerations.	This works with enumerations.
<pre>\begin{itemize}     \item Underline. \end{itemize}</pre>	• Underline.
\tdocsep % Uniform behaviour.  Ble, ble, ble	Ble, ble, ble

# XI. History

P BREAK.

- The tdoccaution environment has been renamed tdoccaut for simplified input.
- Content highlighting: examples and remarks, indicated via the tdocexa and tdocrem environments, are always numbered, and share the same counter.
- The unused macro \tdocxspace has been deleted.

#### NEW.

- Change log: the \tdocstartproj macro is used to manage the case of the first public version.
- Code factorization: the \tdocicon macro is responsible for adding icons in front of text.

#### **W** UPDATE.

- Colors: the \tdocdarkcolor and \tdoclightcolor macros offer an optional argument.
  - 1. \tdocdarkcolor: the amount of color in relation to black can be optionally defined.
  - 2. \tdoclightcolor: the transparency rate can be optionally defined.
- Content highlighting: reduced space around content in colored frames.
- Versioning: better vertical spacing thanks to \vphantom.

1.3.1 2024-09-26

#### NEW.

• Star version of \tdocenv to display only the environment name.

1.3.0 2024-09-25

#### **O** PROBLEM.

Version 3 of minted cannot be used for the moment as it contains bugs: see https://github.com/gpoore/minted/issues/401. We therefore force the use of version 2 of minted.

#### P BREAK.

• The tdocimportant environment has been renamed tdocimp for simplified input.

#### NEW.

- Change log: proposed environments use icons.
- Content highlighting: colored frames with icons are proposed for the following environments.
  - 1. tdoccaution
- 3. tdocnote

5. tdocwarn

2. tdocimp

4. tdoctip

1.2.0-a 2024-08-23

#### UPDATE.

- \tdocversion
  - 1. The version number is above the date.
  - 2. The spacing is better managed when the date is absent.

#### FIX.

• Content highlighting: the French translations of "caution" and "danger" were incorrect.

1.1.0 2024-01-06

#### 🏶 New.

- Change log: two new environments.
  - 1. \begin{tdocbreak} ...\end{tdocbreak} for breaking changes which are not backward compatible.
  - 2. \begin{tdocprob} ... \end{tdocprob} for identified problems.
- $\bullet$  \tdocinlatex: a light yellow is used as the background color.

1.0.1 2023-12-08

#### FIX.

- \tdocenv: spacing is now correct, even if the babel package is not loaded with the French language.
- \begin{tdocshowcase} [nostripe] ... \end{tdocshowcase}: page breaks around "framing" lines should be rare from now on.

1.0.0 2023-11-29 **\$** First public version of the project.