

## *Refcheck*<sup>ver.1.9.2</sup><sub>2025/06/20</sub> for L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>

This short demo file describes usage of *Refcheck* package with L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>. The package looks for useless labels, unlabelled equations, unused bibliography references and puts ‘keys’ of labels on margins.

To start checking, one should just write

```
\documentclass{article}
\usepackage{refcheck}
```

at the beginning of document and compile the file twice. Then, comments on references could be found in .log file and in the margins.

Consider the set of equations

$$\begin{array}{ll} a = b & (1) \boxed{\text{eq.1}} \\ b = c & (2) \underline{?eq.2?} \\ c = d, & (3) \{?\} \end{array}$$

written as

```
\begin{eqnarray}
&& \&\&a=b\label{eq.1}\&\& \\
&& \&\&b=c\label{eq.2}\&\& \\
&& \&\&c=d, \\
\end{eqnarray}
```

Then the .log file will contains the following messages:

```
Package refcheck Warning: Unused label ‘eq.2’ on input line 44.
Package refcheck Warning: Unlabelled equation (3) on input line 46.
```

because the equation (1) is referenced here by (`\ref{eq.1}`), the label `eq.2` of the second equation is not used and the last equation is numbered but it is not labelled.

Keys of labels are written in the marginal notes when the option *showrefs* (default) or the command `\showrefnames` are invoked. This regime can be set off by the option *norefs* or (at any point of text) by the command `\norefnames`.

These marks include some information on labels. Namely, useless labels are underlined and bounded by ‘?’, the mark ‘{?’ means that the equation is unlabelled. Marks are framed for the labels which are used in text.

The package is working in the same way with bibliography. Consider the following short list of books:

### References

`\book1` [1] A book.

`\book2` [2] Another book.

`?\book3?` [3] Third book.

defined as follows

```
\begin{thebibliography}{9}
  \bibitem{book1}A book.
  \bibitem{book2}Another book.
  \bibitem{book3}Third book.
\end{thebibliography}
```

Further, we use the labels of [1, 2] with the command `\cite{book1,book2}` and do not use the label ‘book3’. Then, the `.log` file will contain the following message

```
Package refcheck Warning: Unused bibitem ‘book3’ on input line 88.
```

Commands `\showcitenames` and `\nocitenames` for bibliography are analogous to the commands `\showrefnames` and `\norefnames`. They set on and off *Refcheck* to write keys of bibitems to output. The same function is for the options *showcites* (default) and *nocites*.

Options *msgs* (default) and *nomsgs* state whether *Refcheck* writes its messages to `.log` file or not.

The check of unlabelled equations can be switched off by the option *ignoreunblld* and on (default) by the option *chkunblld*.

*Refcheck* generally works with  $\mathcal{A}\mathcal{M}\mathcal{S}$ -L<sup>A</sup>T<sub>E</sub>X and **hyperref**, but the packages must be loaded before the *Refcheck* package.

*Refcheck* can be used with the **xr** package. Suppose one invokes

```
\usepackage{xr} \externaldocument [A:] {apps}
```

in document `fool.tex` and

```
\usepackage{xr} \externaldocument [B:] {apps}
```

in document foo2.tex. Then the commands `\refcheckxrdoc[A:]{foo1}` and `\refcheckxrdoc[B:]{foo2}` used in apps.tex allows to check usage of labels from apps.tex in the external files foo1.tex and foo2.tex.

Note the problem with implicitly cited labels. For example, if there is a set of equations which are labelled with `a1,a2,...an` and referred in document by `(\ref{a1})--(\ref{an})`, then the labels `a2,a3,...an-1` cannot be recognized as ‘used’.

### Summary of options and commands:

`\refcheckxrdoc[prefix]{foo}` to check usage of labels of the current document in the file foo.tex where they are used via `\usepackage{xr}` and `\externaldocument[prefix]{thisdocument}`

Option	Command	Switch	Function
showrefs*	<code>\showrefnames</code>	on	to put keys of labels
norefs	<code>\norefnames</code>	off	in the marginal notes
showcites*	<code>\showcitenames</code>	on	to put bibitem keys
nocites	<code>\nocitenames</code>	off	in the marginal notes
msgs*	<code>\setonmsgs</code>	on	to write <i>Refcheck</i> ’s
nomsgs	<code>\setoffmsgs</code>	off	messages to .log
chkunlbd*	<code>\checkunlbd</code>	on	to check unlabelled
ignoreunlbd	<code>\ignoreunlbd</code>	off	equations

\* default

### Versions of *Refcheck*, acknowledgments and bugs:

- Versions **1.0–1.3** worked with L<sup>A</sup>T<sub>E</sub>X 2.09. Many thanks to Antonio Loria for his useful comments on those versions. Version **1.2** of *Refcheck* can be found in /tex-archive/obsolete/macros/latex209/contrib/ in CTAN.
- **1.4** was the first version of *Refcheck* for L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>, it had a few bugs in its functionality for  $\mathcal{A}\mathcal{M}\mathcal{S}$ -L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>’s `\eqref`, `\tag`, `split` and `multline`. Many thanks to Cornelius C. Noack and Mikhail Zotov for finding the problem.
- In the version **1.5** the bugs were removed, but it was found (thanks to Mikhail Zotov) that the version marks  $\mathcal{A}\mathcal{M}\mathcal{S}$ -L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>’s `equation*` and `gather*` as unlabelled. The versions **1.6** solved the problem.
- The version **1.7** (optimized code of **1.6**) was found by Adriano Pascoletti to work incorrectly in `\caption` (more generally, when `\ref`, `\pageref` occur

in a material processed to `\write`, in particular, to be put into `.toc`, `.lot`, `.lof` files).

- The version **1.8** was intended to solve the problem. Besides, some more work was done to provide compatibility with  $\mathcal{A}\mathcal{M}\mathcal{S}$ -L<sup>A</sup>T<sub>E</sub>X and `hyperref`.
- The version **1.9** added possibility to check usage of labels in external files. More compatibility with `cite` package was achieved.
- The minor version **1.9.1** was intended to fix the bug discussed at <http://tex.stackexchange.com/questions/88046/problem-with-refcheck>. Besides, the format of refcheck warnings was changed.
- The minor version **1.9.2** ensures compatibility with the latest versions of  $\mathcal{A}\mathcal{M}\mathcal{S}$ -L<sup>A</sup>T<sub>E</sub>X. Many thanks to Andrea Crisanti for providing information about the problem, which notably manifested as duplicate labels in subsequent unlabelled equations.

**New options and commands:**

- Version **1.5**: `msg` and `nomsg`.
- Version **1.6**: `ignoreunbl` and `chkunbl` (suggested by Miroslav Fikar).
- Version **1.9**: `\refcheckxrdoc`.