The tcbpagefootnote package

Page footnotes from inside tcolorbox

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https://github.com/munepi/tcbpagefootnote

v1.6 (2026/11/25)

1 Introduction

tcolorbox typesets the content of a box like a `minipage`: a `\footnote` inside the box is numbered with the `mpfootnote` counter (as a, b, c) and its text is put at the bottom of the box. This is often what you want for a box that stands apart from the text, but not for a box that is part of the running text, such as a note or a definition in a book: there, the footnotes should share the numbering of the body text and go to the bottom of the page.

The tcbpagefootnote package adds the tcolorbox key `page footnote` for this. The two boxes below differ only in this key.

An ordinary box

A footnote in an ordinary box[a] is a footnote of the box.

[a] This footnote is put at the bottom of the box.

A box with `page footnote`

A footnote in a box with `page footnote`[1] is a footnote of the page, numbered along with the footnotes of the body text.

Supported formats/engines pdfLaTeX, XeLaTeX, LuaLaTeX (with or without LuaTeX-ja), pLaTeX and upLaTeX (with dvipdfmx); horizontal (yoko) and vertical (tate) writing. The package requires tcolorbox and loads its `hooks` library. With LuaLaTeX, it also loads `tcbpagefootnote.lua`.

2 Usage

```
\usepackage{tcbpagefootnote}

\begin{tcolorbox}[title=Note, page footnote]
  Text\footnote{A page footnote.}.
\end{tcolorbox}

\newtcolorbox{note}[1][]{colback=blue!5, page footnote, #1}
\tcbset{page footnote}  % for every box
```

The key acts on the footnotes in the title, the upper part and the lower part of the box:

[1] This footnote is put at the bottom of the page.

- the marks are made with the `footnote` counter and `\thefootnote`, as in the body text;
- the texts are collected while the box is typeset and are put into the ordinary footnote insertion right after the box, so that they go to the bottom of the page where the box is. If the box does not fit on the current page and moves to the next one, its footnotes move with it.

`\footnote[`⟨*number*⟩`]`, `\footnotemark` with `\footnotetext`, `\tcbox`, and boxes with `page footnote` inside each other work as usual. An ordinary box inside a box with `page footnote` keeps its own footnotes. With hyperref, each footnote mark links to its own footnote text.

Breakable boxes A `breakable` box that is broken across pages puts each footnote text on the page of its mark, like the body text does, and each part of the box leaves room for its footnotes. This is done in one run, in a way that depends on the engine.

- With LuaLaTeX, the footnote texts are real insertions at their marks. When tcolorbox splits the content of the box, each part keeps the insertions of its marks, and tcbpagefootnote moves them out of the part to its page. The content is split as if each line with a footnote mark were as much higher as its footnote text needs at the bottom of the page.
- With the other engines, each footnote text is typeset at its mark and kept in a box, and a TeX mark (`\marks`) at the footnote mark tells which part the footnote belongs to. The content is split again, from a copy, until the part and its footnotes fit.

With every engine, what a part leaves for its footnotes is computed with the `\count\footins` and `\skip\footins` of the column of the part: a package may change them from column to column (e.g. ftnright in the two columns of LaTeX). See also Section 4.

Breakable boxes inside breakable boxes tcolorbox does not break a box inside another box. With the tcbnestbreak package it does: a `breakable` box inside a `breakable` box is broken together with the outer box. If both boxes have `page footnote`, the footnotes of the inner box are put on the pages of their marks as well.

Tagged PDF With `\DocumentMetadata{tagging=on}`, for example, LaTeX loads its new footnote code. With this code, the footnote text is typeset where its mark is, as in a `minipage`, and the typeset text is put into the footnote insertion after the box. In the structure tree, the footnote (`FENote`) then directly follows its mark (`Lbl`), as for a footnote in the body text. The text is typeset by the `\@footnotetext` of the page, in the `\columnwidth` outside the box and in the normal color, not in the text color of the box. If a package has put code around `\@footnotetext`, e.g. to set the footnotes in another width, it acts on the footnotes of a box as well.

Footnotes that are not split The package works with the footnotenosplit package, which keeps TeX from splitting a footnote: a footnote of a box that TeX moves to the next page as a whole gets the space of `\footnotetopkern` above it, as a footnote of the body text does. In general, where the package typesets a footnote text in a box and puts it into the footnote insertion later, the insertion gets the parameters that the `\@footnotetext` of the page has set (`\interlinepenalty`, `\splittopskip`, `\splitmaxdepth`, `\floatingpenalty`).

Vertical writing `page footnote` also works in tate, with the tate classes of pLaTeX and upLaTeX (e.g. `tarticle` and `utarticle`) and of LuaTeX-ja (e.g. `ltjtarticle`). With pLaTeX and upLaTeX, load the pxpgftate package as well: without it, TikZ/PGF, and so tcolorbox, draws the boxes sideways in tate. tcbpagefootnote does not load it itself.

```
\documentclass[dvipdfmx]{tarticle}
\usepackage{tcbpagefootnote}
\usepackage{pxpgftate}
```

3 Errors and warnings

`The key 'page footnote' cannot be used with 'float'.` A floating box (`float`) is not followed by the code that puts the footnotes.

`The 'after' code of this box no longer flushes the page footnotes.` The footnotes are put by the `after pre` code of the `hooks` library. Keys that set the whole `after` code (such as `after`, `after skip` and `nobeforeafter`) remove it when they come after `page footnote`: give them before it, e.g. `[after skip=1pt, page footnote]`.

`The tcolorbox key 'page footnote' is already defined.` Another package defines a key of the same name; tcbpagefootnote does not redefine it.

`This box is broken across pages.` **(warning)** Only in `multicols` or inside another box; see below.

4 Limitations

- In a `multicols` environment, where the footnotes are below all the columns, and inside another box such as a `minipage`, a `breakable` box that is broken puts the footnote texts of all its parts where the box ends. The package issues a warning for such a box when it has footnotes.
- With an engine other than LuaTEX, a footnote inside a box of the content of a broken box (e.g. a `\footnotetext` in a `tabular`) can be put on the page after that of its mark: TEX does not see the mark of such a footnote when the content is split. Also, the footnote text is typeset through `\@footnotetext` with `\insert` redefined; a class or package whose `\@footnotetext` does not use `\insert\footins` is not supported there.
- With LuaLATEX, the part of a broken box on a page that has no footnote before the box is up to `\skip\footins` (the space above the footnotes) shorter than without `page footnote`, when the part has no footnote but the rest of the box has one.
- `page footnote` cannot be used with `float`.
- With pLATEX and upLATEX in tate, a `\footnotetext` in vertical mode (e.g. right after a box) does not work with the new footnote code of LATEX (`\DocumentMetadata`), with or without this package. Put it in a paragraph.

5 Tests

`make test` compiles the test files with pdfLATEX, XeLATEX, LuaLATEX, pLATEX and upLATEX (+ dvipdfmx) and checks the log. The tests pass with TEX Live 2025 (frozen: LATEX 2025-11-01, tcolorbox 6.9.0) and with TEX Live 2026. For every footnote, `test-common.tex` records in the `.aux` file at shipout the page and the mark of both the footnote mark and the footnote text, and whether the text is set in the full `\columnwidth` of the page (a page footnote) or in a box; when the `.aux` file is read back at `\end{document}`, it checks that every text is typeset exactly once, with its own mark, on the expected page (`TPF-RESULT OK`).

Test	What it covers
`test-basic.tex`	title/upper/lower, nesting, `\tcbox`, a box moved to the next page
`test-hyperref.tex`	`test-basic.tex` with hyperref: no duplicate anchors
`test-breakable.tex`	a box broken by `\tcbbreak`, an unbroken breakable box
`test-breakable-long.tex`	boxes that TEX breaks across several pages
`test-twocolumn.tex`	boxes broken across the two columns of LATEX, also with ftnright
`test-nested.tex`	with tcbnestbreak: breakable boxes inside a breakable box
`test-japanese.tex`	Japanese classes (ltjbook, jbook, ujbook)
`test-tagging.tex`	the tests above with `\DocumentMetadata{tagging=on}`; `test-tagging.lua` checks that each `FENote` follows its `Lbl` in the structure tree
`test-tate.tex`	`test-basic.tex` and the breakable tests in tate (tarticle, utarticle, ltjtarticle)
`test-nosplit.tex`	with footnotenosplit: footnotes that TEX moves to the next page
`test-errors.tex`	the error messages

`test-basic.tex` and `test-breakable-long.tex` are also run, without and with tagging, with code around `\@footnotetext` that sets the footnotes of the page in another width. With footnotenosplit, `test-common.tex` also checks that no page has a footnote rule without a footnote and that the first footnote below the rule is as far from the rule on every page (`TPF-RULE OK`); `test-basic.tex`, `test-hyperref.tex`, `test-breakable-long.tex` and `test-nested.tex` are run in this way as well.

6 History

v1.6 (2026/11/25) A footnote text that is typeset in a box and put into the footnote insertion later (with an engine other than LuaTEX in a broken box, and with the new footnote code of LATEX) keeps the parameters of its insertion that the `\@footnotetext` of the page has set. Before, with the footnotenosplit package, such a footnote that TEX moved to the next page was nearer to the footnote rule, by `\footnotetopkern`, than a footnote of the body text.

v1.5 (2026/11/24) With LuaLATEX, what a part of a broken box leaves for its footnotes follows the `\count\footins` of the column of the part, which a package may change from column to column (e.g. ftnright). With the new footnote code of LATEX, the footnote text is typeset by the `\@footnotetext` of the page: code that a package has put around it acts on the footnotes of a box as well.

v1.4 (2026/11/22) A `breakable` box that is broken across pages puts each footnote text on the page of its mark: with LuaLATEX through the new file `tcbpagefootnote.lua`, with the other engines through `\marks`. With the tcbnestbreak package, this also holds for a breakable box with `page footnote` inside such a box.

v1.3 (2026/11/17) Vertical writing: `page footnote` is tested in tate with pLATEX, upLATEX (with pxpgftate) and LuaTEX-ja. The code of the package is unchanged.

v1.2 (2026/11/16) Tagged PDF: with the new footnote code of LATEX, the footnote text is typeset at its mark and output after the box, so that its `FENote` follows the `Lbl` of its mark (latex3/tagging-project#1709).

v1.1 (2026/11/14) With hyperref, a `\footnotetext` after a box for a `\footnotemark` in the box gets the anchor of its mark: the mark and the anchor of the last footnote are restored after the footnotes of the box are put.

v1.0 (2026/10/25) First public release.

7 License

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