The `lastpage` package*

Jeff Goldberg
goldberg@nytud.hu

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Abstract

This package puts the label `LastPage` into the `.aux` file, allowing the user to use references to the last page of a document. This might be particularly useful in places like headers or footers.

1 Introduction

For various draft forms it is desirable to have a page reference to the last page so that page footers, for example, could contain something like "page N of K', where N is the current page and K is the last page.

This package defines a label, `LastPage`, which the user can refer to using the `\pageref` command.

2 The user interface

Just load it with by placing

```
\usepackage{lastpage}
```

in the preamble of your LaTeX 2_ε source file.

`LastPage` Once that is loaded, you will be able to make reference anywhere in your text to the label `LastPage`. In particular you can either use the fancyheadings package, or your own redefinitions of the page headings and footings to get a reference to the last page, as in the example below.

```
\makeatletter
\renewcommand{\@evenfoot}%
   {\normalsize\slshape DRAFT \today\hfil
    \upshape page {\thepage} of \pageref{LastPage}}
\renewcommand{\@oddfoot}{\@evenfoot}
\makeatother
```

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to get footers like "*DRAFT June 22, 1995* page 5 of 23" into your document. Or for text like,

```
Hey, you don't write a \pageref{LastPage}~page letter every day,
you know.
```

to get

Hey, you don't write a 12 page letter every day, you know.

3 A few warnings

This package uses the LaTeX 2ε directive of `\AtEndDocument`. If you use other packages that do the same and actually put material at the end, then it is important to load lastpage after such other packages if you want the true last page. That is if a package xyzzy uses `\AtEndDocument` to put out two pages of material at the end of the document, then to get the last page to be the page number of the second of those pages you need to load lastpage after xyzzy makes its call to `\AtEndDocument`

3.1 Interaction with endfloat

Version 2.0 (and earlier) of endfloat actually redefine the `\enddocument`, and so interfere drastically with the LaTeX 2ε commands which make use of `\AtEndDocument`. A newer version of endfloat exists in modern documentation form, which should be available from the same source where you received this file.

If you want your `LastPage` to label the last page of these end floats, you need to load lastpage after loading endfloat. If, on the other hand, you want `LastPage` to refer to the last page, exclusive of the the floats at the end, then load in the reverse order. For each of these, you will still need the modified version of endfloat.

Other LaTeX209 packages also seem to like to redefine `\enddocument`. In addition to the old endfloat, harvard comes to mind. All of these will need to be modified swiftly. (How did these ever work together before? I can't believe that nobody wanted harvard bibliography style and floats at the end before!)

3.2 General ordering and wish list

I believe that the output of a LaTeX 2ε run should be independent of the order in which package are loaded. It would be possible to set this up, but it would take coordiniation of all package writers who use `\AtEndDocument`. The actual call to `\AtEndDocument` would not occur during package loading, but some new command, like `\ExecuteAtEndDocument` would be called by the user after all such packages are loaded, with tags for each thing in the packages, so something like

```
\usepackage{lastpage}
\usepackage{endfloat,xyzzy}
\ExecuteAtEndDocument{endfloat, xyzzy, lastpage}
```

and the order of End Document material would be the endfloat material, followed by xyzzy, and finally by lastpage.

It is often the case that the same formats for which one must put tables and figure at the end, are the ones in which endnotes are also required. If one wants to use lastpage here as well, then it is easy to get to three separate uses of `\AtEndDocument` (assuming one uses that for the endnotes as well). Clearly it is not safe for any package writer or user to assume that no material will follow what they put into and `\AtEndDocument`. This, in addition to the ordering, is a good reason to develop safe practices for use of this very powerful tool.

I will have to wait until someone else develops such a system, but I will gladly modify lastpage to comply with it. Until then I will include a message which begins with `AED` in every usage of `\AtEndDocument`, and try to minimize any side effects my usage may have.

3.3 Ignorance is bliss

The author of this package is not only new to LaTeX 2_{ε}, but also to LaTeX209. If I have duplicated something that already exists, forgive me. I have always wanted this in Plain TeX, but never had the robust cross referencing that LaTeX provides. Now that I have made the big switch, I jumped at the chance to get this done.

4 The documentation driver file

The next bit of code contains the documentation driver file for TeX, i.e., the file that will produce the documentation you are currently reading. It will be extracted from this file by the `docstrip` program, That is, run LaTeX on `docstrip` and specify the `driver` option when `docstrip` asks for options.

```
⟨*driver⟩
\documentclass[11pt]{ltxdoc}
\setlength\hfuzz{1pt}    % ignore slight overfulls
\CodelineIndex
\EnableCrossrefs
%\DisableCrossrefs   % Say \DisableCrossrefs if index is ready
%\RecordChanges       % Gather update information
%\OnlyDescription    % comment out for implementation details
\begin{document}
```

```
   \DocInput{lastpage.dtx}
\end{document}
⟨/driver⟩
```

5 The implementation

We start by checking if this file was already loaded. If not we identify the current version.

```
⟨*package⟩
\NeedsTeXFormat{LaTeX2e}[1994/06/01]
%    \begin{macrocode}
\ProvidesPackage{lastpage}[\filedate\space\fileversion\space
             LaTeX2e package for refs to last page number (JPG)]
```

`\lastpage@putlabel` Simply using `\label` wouldn't work; because labels wait for the output routines to work, and there may not be any more invocations of the output routines. To force the write out we need to do an `\immediate` write. Since the last page has been output, we are on the page after the last. I subtract one from the page counter. After the writeout I restore it again since there might be other things At the End of Document still to do.

```
\def\lastpage@putlabel{\addtocounter{page}{-1}%
   \immediate\write\@auxout{\string
   \newlabel{LastPage}{{}{\thepage}}}%
   \addtocounter{page}{1}}
```

The call to `\AtEndDocument` is simple. I put in a `\message` to show what order thing are called done in (see section 3.1).

```
\AtEndDocument{%
   \message{AED: lastpage setting LastPage}%
   \clearpage\lastpage@putlabel}%
⟨/package⟩
```

6 Things to be done

- Allow user to specify a given page number.
- Allow user to specify a string other than `LastPage` for the reference.
- Work on better order control as discussed in section 3.2.
- Work on general conventions for using `\AtEndDocument` generally. (see section 3.2).

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The italic numbers denote the pages where the corresponding entry is described, numbers underlined point to the definition, all others indicate the places where it is used.