LaTeX (2020-10-01) and latexmk

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1 Introduction

I write all sorts of documents; some have figures and cross-references, some have Tables of Contents, etc., and a few have bibliographies — I'm not sure I ever wrote anything that had indexes although some of my test documents have them. I therefore use one of TeXShop's latexmk based engines, (pdf/xe/lua)latexmk, to produce the final output with a push of a button (or Cmd-T which is quicker).

But most of my documents are the simple type that really require only a single typesetting pass to produce the finished document. I'm rather lazy so I tend to use on of the latexmk based engines even for simple documents. Yes, it takes a second or two longer to typeset the document but I go back to a time when it took almost a minute a page so, on my time scale, it's negligible. However, I noticed that after the 2020/10/01 update to LaTeX those engines were now running the basic underlying engine, (pdf/xe/lua)latex, twice; previously the engines correctly made only one pass.

This document discusses why that has happened and a way to bypass that problem (with a small cost).

2 What Happened in LaTeX (2020-10-01)?

I immediately contacted John Collins, the maintainer of latexmk, and, as usual, the reason came back quickly. LaTeX (2020-10-01) introduced a new set of *hooks* to the system so programmers can easily obtain information when creating packages. One of the hooks requires a new line in the .aux file, which is examined by latexmk. This line acts like a cross-reference so the latexmk based engine runs the underlying typesetting engine one more time to resolve the cross-reference making typesetting take twice as long.

This new hook contains the page number for the last page *as generated on the previously completed run*; it's set to 0 when the .aux file is initially generated. A programmer can access the value of this variable using the `\PreviousTotalPages` command.

3 The Fix

You can tell all of the latexmk based engines to neglect that extra line in the .aux file by simply adding the lines

```
# fix a problem with multiple typesets under the latest version of LaTeX
$hash_calc_ignore_pattern{'aux'} = '@abspage@last';
```

at the bottom of the `~/Library/TeXShop/bin/latexmkrcedit` file.[1] The first of the two lines is simply a comment (all lines that start with a # are comments to latexmk) while the actual command is the second line.

[1] You can easily get to `~/Library/TeXShop` using TeXShop's TeXShop → Open `~/Library/TeXShop` menu command. If you have never used any of TeXShop's latexmk based engines before you will have to use them once to create the `~/Library/TeXShop/bin/latexmkrcedit` file.

If you are using a package that actually uses the `\PreviousTotalPage` command or you use it in your document directly create a platexmkrc file for that project that simply contains the line

```
delete $hash_calc_ignore_pattern{'aux'} ;
```

which cancels the command in the latexmkrcedit file above. Note: at this point I know of no packages that use that command.

Finally, if you need to use the number of the last page of the document try using the lastpage package which actually puts a label, LastPage, on the last page. The latexmk based engines will automatically typeset the document an extra time to make sure the label has the correct value and you can reference the value using the `\pageref{LastPage}` in your document.