The pagerange Package

Version 0.5

Ahmed Musa
University of Central Lancashire
Preston, United Kingdom
a.musa@rocketmail.com

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1 Introduction

This package emerged from my desire to resolve page ranges in the `draftmark` package, but it may be useful to other (LA)TEX enthusiasts and users.

2 Usage

When a given page range `xx-yy` (simple/plain characters) or `\pages` (control sequence, e.g., `\def\pages{xx-yy}`) is submitted to the macro `\pagerange` (e.g., `\pagerange{xx-yy}` or `\pagerange\pages`), this package splits the range as `xx` in the macro `\pagestart` and `yy` in `\pageend`. The counter equivalents of these are `\prg@cnta` and `\prg@cntb`. The control sequence containing the page range (e.g., `\pages`) is fully expanded before the page range is split.

If you specify a range consisting of a hyphen (or any tie) but with one or two empty page numbers, the following will happen:

a) A range of the form "`-34`" is taken to mean pages `defaultfirstpage` to 34. The default value of `defaultfirstpage` is 1; it can be changed via `\pagerangeoptions`.
b) A range of the form "`12-`" is taken to mean page 12 to `defaultlastpage`, where the default value of `defaultlastpage` is the document's last page.
c) A range of the form "`-`" (i.e., only hyphen and no pages) is taken to mean from `defaultfirstpage` to `defaultlastpage`.
d) A blank page range (i.e., containing no argument and no hyphen/tie) is taken to mean the range `defaultfirstpage` to `defaultlastpage`, or it may prompt a fatal error, depending on whether the boolean `acceptempty` is set true or false (respectively).

Page ranges containing more than one hyphen/tie cause fatal error.

If the upper limit of the page range is smaller than the lower limit, a fatal error is flagged.

The tie between the pages in the page range can be any single non-active character; its default is the hyphen character "-". It can be changed in the call to the package (e.g., `\usepackage[tie=*]{pagerange}`) or at any moment through `\pagerangeoptions{tie=*}`.

Because of the need for the last page of the document, at least 2 runs/passes are needed to obtain the correct last page.

This package has been tested with the `hyperref` package, which redefines the label used by the `lastpage` package.

2.1 Using an active character as the "tie"

Active characters can't, unfortunately, be used as ties. The package easily terminates with a fatal error when an active character is passed as `tie`. It wouldn't be safe to change the catcode of an active character submitted as `tie` through `\pagerangeoptions`, since at the time the macro `\pagerangeoptions` is invoked, the page may already be in the process of being built.

To use an active character (say ~) as a tie, it is necessary to first locally change its catcode, e.g., as follows:

```
\begingroup
\catcode`\~=11
\pagerangeoptions{tie=~}
\pagerange{1~4}
\endgroup
```

which gives Pages 1 to 4.

3 Package options

The package options are as follows:

Option	Default	Meaning
`tie`	hyphen (-)	The tie that show the breakpoint for the page range.
`acceptempty`	`false`	The boolean option that specifies if empty page ranges (i.e., no page numbers and no tie) submitted to the package should be accepted. If true, the page range is assumed to be from page 1 to the last page.
`defaultfirstpage`	`1`	The default start page number, used as the starting page when no starting page number is specified by the user.

`defaultlastpage`	document's last page	The default last page number, used as the last page when no last page number is specified by the user.

4 Examples

Example 4.1

The following

```
6 \pagerange{123-456}
7 Pages~\pagestart\space to\space\pageend
```

produces Pages 123 to 456.

Example 4.2

The following

```
8 \pagerange{12345-67890}
```

produces Pages 12345 to 67890.

Example 4.3

The following

```
9 \pagerange{123-4567}
```

produces Pages 123 to 4567.

Example 4.4

The following

```
10 \pagerange{600-601}
```

produces Pages 600 to 601.

Example 4.5

The following

```
11 \pagerange{-34}
```

produces Pages 1 to 34.

Example 4.6 No page numbers given

The following

```
\pagerange{-}
```

produces Pages 1 to 6.

Example 4.7

The following logs a warning message or issues fatal error, depending on the status of `acceptempty` option:

```
\pagerange{}
```

Example 4.8

The following fails because of multiple hyphens (ties):

```
\pagerange{123-456-789}
```

Example 4.9

The following fails because `\pagestart` is larger than `\pageend`:

```
\pagerange{34-12}
```

Example 4.10

The following fails because `tie` can't be active character:

```
\pagerangeoptions{tie=~}
```

Example 4.11

For the same reason (i.e., the use of active character as `tie`), the following fails—although nested commands are permitted:

```
\def\Xone{~}
\def\Xtwo{\Xone}
\pagerangeoptions{tie=\Xtwo}
```

Example 4.12

The following works because the `\pagerange` is fully expanded before splitting:

```
\def\Xone{-}
\def\Xtwo{\Xone}
\pagerange{22\Xtwo 23}
```

This produces Pages 22 to 23.

Example 4.13

The following also works because the `\pagerange` is fully expanded before splitting:

```
\def\X{-}
\def\Y{2222}
\def\Z{3333}
\pagerange{\Y\X\Z}
```

This produces Pages 2222 to 3333.

Example 4.14

The following also works because the `\pagerange` and `tie` are fully expanded before splitting page range:

```
\def\X{-}
\pagerangeoptions{tie=\X}
\pagerange{123\X 234}
```

This produces Pages 123 to 234.

Example 4.15

The following works because infinite nesting of `tie` and `\pagerange` are permitted:

```
\def\Xone{-}
\def\Xtwo{\Xone}
\pagerangeoptions{tie=\Xtwo}
\pagerange{444\Xtwo 555}
```

This yields Pages 444 to 555.

Example 4.16

The following gives incorrect (in fact, weird) result because the prevailing `tie` is not a star:

```
\pagerange{33*44}
```

Example 4.17

The `tie` can be changed to a star (or any non-active character) as follows:

```
\pagerangeoptions{tie=*}
\pagerange{2233*3344}
```

This correctly produces Pages 2233 to 3344.

Example 4.18

In the following the `tie` is changed to letter "T":

```
\pagerangeoptions{tie=T}
\pagerange{1234T1235}
```

It produces Pages 1234 to 1235.

Example 4.19

The following

```
\pagerangeoptions{tie=X}
\pagerange{2034X2135}
```

correctly yields Pages 2034 to 2135.

5 Using page labels

From version 0.3 of the package, it has been possible to obtain page ranges from LaTeX references, e.g., as in

```
\label{page:label}
\pagerangeoptions{tie=-}
\let\getpage\getpagenumber
\pagerange{\getpage{page:first}-\getpage{page:last}},
```

which yields Pages 1 to 6.

The command `\getpagenumber` is provided in the package and may, in general, be used to convert page labels into page numbers even in expansion contexts, where `\pageref` will normally fail. If the page label or reference is undefined, the default start page number (`defaultfirstpage`) is used. The `defaultfirstpage` is a package option (see Section 3).