

The `folio` package

Folio numbering for old books

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Abstract

The `folio` package implements medieval and early modern folio numbering with a few customizable options. In folio numbering only every other page gets a number and the number has two parts that identify both the quire and the folio inside of the quire. The package works best in conjunction with the `fancyhdr` package but it can be used also without it.

1 Introduction

Before modern page numbering was introduced, the pages of a book were numbered using *folio numbering*. In this context *folio* means a single leaf of a page, an odd page and the even page that is on the other side of.

A medieval book was composed of *quires*. A quire is a collection of sheets of paper or parchment that are folded together to form pages. As the name suggests, most quires had four sheets that were folded to form eight folios and 16 pages, but there were also three, five, and even six sheet quires. With printed books the modern term *gathering* is usually used in place of *quire*, but I have used *quire* throughout because it is shorter.

A medieval scribe would write the text on quires and then a bookbinder would sew the completed quires together and attach the book covers. Most texts needed more than one quire. Scribes started to number the quires to help bookbinders to keep the quires in order. They were usually marked by writing letters in alphabetical order at the bottom or top right corner of the first page of the quire.

```

\usepackage{foliono}
\usepackage{fancyhdr}
\pagestyle{fancy}
\cfoot{}
\renewcommand{\headrulewidth}{0pt}
\fancyfoot[R]{\folionumber}

```

Figure 1: Quick-start minimal code skeleton with `fancyhdr`.

Later scribes started to add numbers for the individual folios of a quire. This was usually done for books that needed a table of contents or an index. Folio numbering became more prevalent with the advent of printing as including them helped the bookbinder to ensure that the sheets were folded right and put in the correct order.

For printed books the quires are formed using two basic principles. The largest book format is called *folio* and there the sheet is folded once so that the result has two folios and four pages. These sheets are collected in quires the same ways as manuscript sheets were. In late medieval and early modern times the number of sheets put in a quire varied also for printed books. I have seen examples ranging from three sheets (6 folios) to six sheets (12 folios), with five sheets (10 folios) being very common.

In smaller format books one printed sheet usually makes up a quire by itself. In *quarto* size the sheet is folded twice, so a quire will have only four folios, in *octavo* it is folded three times so there are eight folios per quire, and in *duodecimo* sheets are folded four times to produce 12 folios.

A medieval or early modern folio number generally consists of two parts, the quire number (A, B) and the folio number within quire in Roman numerals (i, ii). There are some examples where the folios are numbered sequentially from the start with no respect to the quire structure. In many of these cases the folio numbers were added after the book had already been bound.

In modern reference convention the two pages of a folio are called *recto* (r) and *verso* (v). The recto is the first page of the folio that is shown on

Format	Folios per quire	Pages per quire
Folio (2:o)	6-12	12-24
Quarto (4:o)	4	8
Octavo (8:o)	8	16
Duodecimo (12:o)	12	24

Table 1: Common old printed book formats

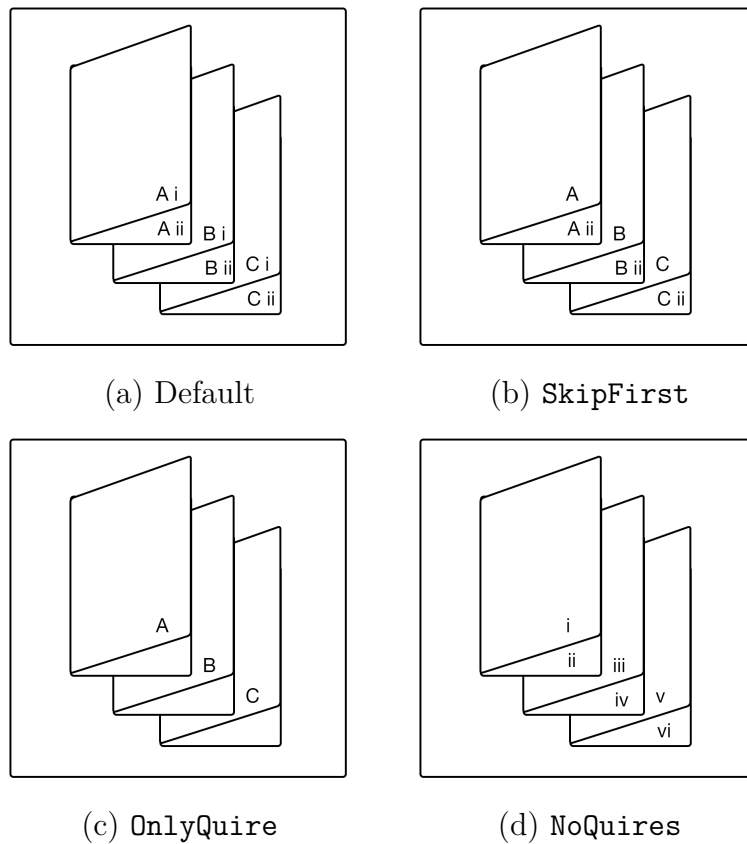


Figure 2: Mode of operation samples

the right hand side of the spread and the verso is the second page on the left hand side.

Bookprinters often did not include the folio number for each folio of the quire. For example, with the *folio* and *octavo* formats it was common that only the folios of the first half of a quire had numbers. Similarly, with *quarto* the last folio number of a quire was often left out.

The `foliono` package supports several different folio numbering conventions and it also provides very rudimentary support for creating tables of content and indices for folio-numbered documents. However, a lot of manual work is necessary for creating them.

In the examples I will be using the font *Missaali* to typeset the folio numbers as they would appear on the page. *Missaali* is a free opentype font that comes with the package `missaali` that is based on late 15th century book Northern German book textura.

2 Modes of operation

The `foliono` package can operate in several different modes that are controlled using the package options. A folio number consists of two parts, the quire number and the folio number, and the different modes show them using different principles. Figure 2 shows four of the basic modes in schematics.

Default

The default behavior of *foliono* is that each folio is numbered with both the quire number and the folio number inside a quire. Thus, the folio numbers advance like:

A 1, A 2, ..., A 8, B 1, B 2, ..., B 8, C 1, ...

Skip first folio number (`SkipFirst`)

The first folio number skipping mode is otherwise the same as the default mode, but the first folio of a quire contains only the quire number and not the folio counter. The numbers advance like:

A, A 2, A 3, ..., A 8, B, B 2, ..., C , C 2 ...

Only quire numbers (`OnlyQuire`)

In the only quire numbers mode the folio numbers are not included at all and only the first pages of a quire have the mark:

A, {}, {}, {}, {}, {}, {}, {}, B, {}, ...

No quires (`NoQuires`)

In this mode the folios are numbered sequentially from the start of the book paying no regards to the quire structure. Here the numbers are simply:

1, 2, 3, 4, 5, ...

Sheet numbering (`SheetNumbering`)

In sheet numbering mode there is only one folio number per a two page sheet. In practice, this means that the first half folios of a quire are numbered using the default style and the latter half are left unnumbered:

A 1, A 2, A 3, A 4, {}, {}, {}, {}, B 1, B 2, ...

This mode can be combined with skipping the first folio number.

Skip end half (SkipEnd)

In this mode the folio numbers are printed to the first half + 1 folios of a quire and the rest are left empty. In practice the effect is otherwise same as with sheet numbering except that one more folio has a number.

For quarto format the numbers go:

A 1, A 2, A 3, {}, B 1, B 2, ...

For octavo format the numbers are:

A 1, A 2, ..., A 5, {}, {}, {}, B 1, B 2, ...

For duodecimo they go:

A 1, A 2, ..., A 7, {}, {}, {}, {}, {}, B 1, B 2, ...

This mode can be combined with skipping the first folio number.

3 General usage

The basic command in the package is `\folionumber`. This should be put either in the header or footer of the page and it should be run exactly once on each page since it keeps track of the folio number counters and also whether we are on recto or verso side of the folio. Manipulating headers and footers is simplest with the `fancyhdr` package. For the basic functionality you can add the following to the preamble of the document:

```
\usepackage{fancyhdr}
\usepackage{foliono}
\cfoot{}
\renewcommand{\headrulewidth}{0pt}
\fancyfoot[R]{\folionumber}
\pagestyle{fancy}
```

Here the `\cfoot` removes the modern page number, `\fancyfoot` adds the folio number to the right footer, overriding the `\headrulewidth` removes the horizontal line from top that `fancyhdr` wants to add there, and `\pagestyle` enables the fancy header style.

You need to decide how big your quires are. The package defaults to eight folio quires, meaning that when printed there are four sheets in the quire. Historically that was the most common quire size for manuscripts, but other sizes were also used. You can set the quire size with the `\folionoquirefolios` command. For example:

```
\folionoquirefolios{10}
```

sets the quires to have 10 folios and 20 pages each. It is possible to change the value in the middle of the document to get quires of different sizes.

In case you need to set the folio number manually, there are two ways to do it:

1. `\stepfolio`: this moves the counters to the next folio.
2. `\setfoliono{quireNo}{folioNo}`: sets the quire counter to `quireNo` and the folio counter to `folioNo`.

There are three commands that you can use to access the current folio number from text. All of these commands set the folio number even if `\folionumber` does not print it on the page.

1. `\currentfolio` this sets the current folio number as unformatted string.
2. `\currentfoliowithsides` this sets the current folio number as unformatted string that is followed by the side reference `r` or `v`.
3. `\currentfoliowithstyles` this sets the current folio number formatted and styled the exact same way as it is

Here is an example for their use:

```
\setfoliono{2}{4}
1: \currentfolio \\           1: C iv
2: \currentfoliowithsides \\  2: C iv v
3: \currentfoliowithstyles \\ 3: ℥ iv
```

3.1 Font selection and properties

By default the folio numbers are set using the default document font and size. There are commands that allow you to select the font when using the `fontspec` package. If you are using some other environment, you can redefine the `\folionostyle` command that adds style to the folio numbers.

The font selection commands are:

1. `\folionofont{FontName}`: set the `fontspec` font that is used to set the folio number. You need to set this for the other two font setting commands having effect.
2. `\folionofontsize{size}`: set the size of the folio number. The font must have been set earlier.
3. `\folionofontcolor{color}`: set the color for the folio number. The font must have been set earlier.

```
Before: \currentfoliowithstyles \\
\folionofont{Missaali}
\folionofontsize{18}
\folionofontcolor{c55e47}
After: \currentfoliowithstyles
```

```
Before: ℒ iv
After: ℒ iv
```

3.2 Controlling the formatting

By default the folio number is typeset with a space between the quire and folio numbers. There are commands to add content or commands before and after the both commands as well as to override the default separator.

1. `\quirenoprefix{text}`: the *text* is added before the quire number.
2. `\quirenosuffix{text}`: the *text* is added after the quire number.
3. `\folionoprefix{text}`: the *text* is added before the folio number.
4. `\folionosuffix{text}`: the *text* is added after the folio number.
5. `\folionoseparator{text}`: the *text* is added between the quire and folio numbers.

For example, you can add periods before, after, and in the middle of the folio number with:

```
\quirenoprefix{.}
\folionoseparator{.}
\folionosuffix{.}
\currentfoliowithstyles
```

.ℒ.iv.

You can also add formatting commands to the prefixes. For example, you can achieve two-colored folio numbers with:

```

\quirenostyle{%
  \quirenoprefix%
  QUIRE COUNTER%
  \quirenosuffix%
  \folionoseparator}%
\folionostyle{%
  \folionoprefix%
  FOLIO COUNTER%
  \folionosuffix%
}

```

Figure 3: A pseudocode explanation on how the quire number is formatted. The separator is formatted using the quire number style.

```

\quirenoprefix{\addfontfeature{Color=455f9b}}
\folionoprefix{\addfontfeature{Color=c55e47}}
\currentfoliowithstyles

```

This produces the result:



3.3 Labels and indices

There are two commands for creating labels that have folio numbers for the reference and two commands for creating index entries. The basic forms of the commands typeset the folio numbers without formatting or prefixes and suffixes, and the two others typeset the numbers as they appear on page. All of these commands produce the folio number string even if it is not printed on the current page. Note that commands that are read in from auxiliary and index files break easily and often cause weird error messages.

If you want to create a medieval-styled table of contents, the best way to proceed is probably to use the indexing commands, copy the index file as a base for a new LaTeX document, and then manipulate them by hand to get the desired outcome. You can then combine the original document and the index using the `pdfpages` package. There are two main reasons to do it this way: as far as I know there are no existing index formats that would produce results that are even remotely close to medieval tables of contents or indices, and the main text should start on the folio A 1 of the document. If the table of contents is at the beginning, it should be on a separate unnumbered sheet.

1. `\foliono{label}`: defines a label whose reference string is unformatted version of the current folio number.
2. `\foliono{label}withstyles{label}`: defines a label whose reference string is the formatted version of the current folio number.
3. `\folionoindex{text}`: adds `text` as an index entry in the index file.¹
4. `\folionoindexwithstyles{text}`: adds `text` as an index entry in the index file with complete styling.

4 Package options

The `foliono` package defines the following options:

AllQuires

Before the 17th century the letters *i* and *j* were not yet separated and they were considered to be two variant forms of the same letter that could be used almost interchangeably. Similarly, *u* and *v* were still the same. Because of this `foliono` does not use *i* and *u* as quire numbers by default. The package option `AllQuires` takes the two missing letters in use as quire numbers.

ArabicNumbers

This option changes the folio numbers into Arabic numerals instead of the Roman numerals. This is most useful together with the `NoQuires` option. However, some later printed books used Arabic numerals in folio numbers.

LowerCase

This changes the quire numbers to be in lower case instead of the default upper case letters.

NoQuires

This turns on the no quires mode where folio numbers are numbered sequentially from one upwards with no regard to quire structure.

OnlyQuire

This turns on the only quires mode where folio numbers are left out and the quires have a quire number on their first page.

¹Remember to use `\makeindex` command in the preamble if you use index commands.

SheetNumbers

This turns on sheet numbering mode where there is only one folio number on a two-folio sheet of paper. In practice the first half of folios on a quire will have a number and the rest are empty. This does not work together with `NoQuires`.

ShowSides

If enabled, it will add the indicator *r* or *v* to labels and index entries to show if they land on recto or verso side of the folio. This is not added to the folio numbers printed on pages, only on the references.

SkipFirst

When enabled the first folio of a quire will have only the quire number and not the folio number.

SkipEnd

When enabled the folio numbers are printed on first half + 1 folios of a quire. The effect is otherwise the same as with `SheetNumbers` except that one more folio has the number.

5 Command Reference

`\folionumber`

Sets both the formatted and styled folio number to the page and it also keeps track of the quire and folio counters as well as the recto and verso sides on the document. It should be run exactly once per page of output.

`\folioquoirefolios{folioNo}`

Sets the size of quires to `folioNo` folios. The value should be even. This can be run multiple times inside a document to get quires of different sizes.

`\folionofont{fontId}`

Sets the font that is used to folio numbers to the `fontspec` font `fontId`. If you are using some other font system, you need to redefine `\folionostyle` and `\quirenostyle` instead.

`\folionofontsize{points}`

Sets the size of the folio number font to `points`. This has an effect only if the font has been selected with `\folionofont`. Default size is 10 points.

\folionofontcolor{color}

Sets the folio number font color to `color`. This has an effect only if the font has been selected with `\folionofont`. Default color is black.

\quirenostyle{commands}

A styling command for non-`fontspec` users. Redefine this command to apply styling to the quire counter. This defaults to using the font, size, and color set using the previous font selection commands.

\folionostyle{commands}

A styling command for non-`fontspec` users. Redefine this to apply styling to the folio counter. This defaults to using the font, size, and color set using the previous font selection commands.

\folionolabel{label}

Adds a `label` that can be accessed with the `\ref` command. The label text will be an unformatted folio number string. This creates a reference using the folio number of that particular page even if the number is not printed on the page. This has the most obvious effect when the `SheetNumbers` option is turned on.

\folionolabelwithstyles{label}

Adds a `label` whose reference text contains all the styles and formatting of the current folio number. Otherwise this works the same as `\folionolabel`. *Note! It is very easy to get weird TeX error messages if there is anything complex or fragile in the commands read from .aux files.*

\folionoindex{text}

This adds `text` as an index entry where the page number is replaced with unformatted current folio number. Using this command and some manual manipulation is the easiest way to create medieval tables of context.

\folionoindexwithstyles{text}

This adds `text` as an index entry where the page number is replaced with styled current folio number.

\setfoliono{quireNo}{folioNo}

Sets the quire counter to `quireNo` and the folio counter to `folioNo`.

\stepfolio

Moves the folio number to the next folio. This is most useful in cases

you want to remove the folio number from a single page as setting the page style to `empty` also prevents `\folionumber` from moving to the next number.

`\quirenoprefix{text}`

Sets a prefix of the quire number to be `text`. The prefix can contain formatting commands, but the more complex the commands are, the more likely is that `\folionolabelwithstyles` and `\folionoindexwithstyles` commands break.

`\quirenosuffix{text}`

Sets the quire number suffix to `text`. The suffix may contain both text and commands.

`\folionoprefix{text}`

Sets the folio counter prefix to `text`.

`\folionosuffix{text}`

Sets the folio number suffix to `text`.

`\folionoseparator{text}`

Sets the separator that is placed between quire and folio numbers to `text`. The separator is formatted according to the quire number style.

`\currentfolio`

Gives the unformatted and non-styled version of the current folio number. In particular, the prefixes, suffixes, and the separator are left out of it.

`\currentfoliowithsides`

Gives the unformatted and non-styled version of the current folio number with the side indicator (*r* or *v*) added to its end.

`\currentfoliowithstyles`

Gives the current folio number formatted the same way as it is added to the page by `\folionumber`. This gives the real folio number even if `\folionumber` will skip it, for example, if we are in the second half of a quire and `SheetNumbers` is turned on.

6 Examples

Codex Montpellier, c.1300

Author: unknown
Format: manuscript
Folio numbers: continuously running folio numbers, roman numbers surrounded by centered dots.

Sample: **·iv·**

Code:

```
\usepackage[NoQuires]{foliono}  
\folionoprefix{·}  
\folionosuffix{·}
```

Glogauer Liederbuch, c. 1480

Author: unknown
Format: manuscript
Folios: 12 per quire
Folio numbers: on top right of every folio, most quires have lower case quire numbers but some use upper case

Sample: **ᵗ iv**

Code:

```
\usepackage[LowerCase]{foliono}  
\folionoquirefolios{12}
```

Missale Aboense, 1488

Bookprinter: Barthomolew Ghotan
Format: folio
Folios: 12 per quire
Folio numbers: on every folio, capital quire number, centered dots surround folio number

Sample: **ᵀ·iv·**

Code:

```
\usepackage{foliono}  
\folionoquirefolios{12}  
\folionoprefix{·}  
\folionosuffix{·}  
\folionoseparator{ᵀ}
```

Revelationes Sancti Birgitte, 1492

Bookprinter: Barthomolew Ghotan
Format: folio
Folios: 10 per quire
Folio numbers: on first half of a quire, lower case quire number, periods surround folio number
Sample: **c.iv.**

Code:

```
\usepackage[LowerCase,SheetNumbers]{foliono}  
\folionoquirefolios{10}  
\folionoprefix{.}  
\folionosuffix{.}  
\folionoseparator{}
```

Messu eli Herran Echtolinen, 1549

Author: Mikael Agricola
Format: quarto
Folios: 8 per quire
Folio numbers: first folio of a quire has only quire number, quire numbers are capitalized.
Sample: **℥ iv**

Code:

```
\usepackage[SkipFirst]{foliono}  
\folionoquirefolios{8}
```

Historiae animalum, 1551

Author: Conrad Gessner
Format: folio
Folios: 6 or 8 per quire
Folio numbers: quire numbers are set in Roman typeface, most are upper case but preface uses lower case, folio numbers with arabic numbers, only one folio number per sheet.
Sample: C 2

Code:

```
\usepackage[SheetNumbers,ArabicNumbers]{foliono}  
\folionoquirefolios{6}
```

Wanhain Suomen maan Pijspain Latinan kielised laulud, 1616

Author: Hemminki Maskulainen
Format: octavo
Folios: 8 per quire
Folio numbers: folio numbers on first five folios of a quire, the first folio has just the quire number, quire number in upper case.

Sample: **℥ iv**

Code:

```
\usepackage[SkipFirst,SkipEnd]{foliono}  
\folionoquirefolios{8}
```

Somen Kielinen Catechismus, 1628

Author: Martin Luther
Translator: Knut Carelius
Format: quarto
Folios: 4 per quire
Folio numbers: first folio of a quire has only quire number, last folio of a quire is without number, quire numbers are capitalized.

Sample: **℥ iv**

Code:

```
\usepackage[SkipFirst,SkipEnd]{foliono}  
\folionoquirefolios{4}
```