

The multicoltab package

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Abstract

`multicoltab` provides a non-floating table environment whose rows may continue in the next column of a `multicols` layout or on the next page. It also works in ordinary one-column text. Each source row is typeset as an independent `tabularx`, so a break can occur between rows but never in the middle of a row.

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1 Introduction

The standard table environments are not designed to continue naturally across the columns produced by `multicol`. `multicoltab` addresses this use case with a deliberately small interface:

```
\begin{multicols}{2}
\begin{multicoltab}{@{}p{1.8cm}X@{}}
  Armor & Reduces the damage received by a character. \\
  Shield & Improves the character's defense. \\
  Torch & Provides light in dark places.
\end{multicoltab}
\end{multicols}
```

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The default table width is the current `\linewidth`. Therefore, a table written inside a `multicols` column normally needs no width adjustment. Rows are collected before they are printed. This allows the natural widths of the `l`, `c`, and `r` columns to be measured over the complete table and reused in every emitted row.

2 Relation to longtable

The standard `longtable` package is an excellent choice for tables that continue across ordinary pages. It is not, however, a solution for tables that must flow through the columns of `multicols`. `longtable` modifies LaTeX's output routine and consequently does not work inside `multicols`; it also fails on ordinary `twocolumn` pages. This limitation is stated in the `longtable` documentation.

`multicoltab` addresses this different use case. It does not replace the output routine. Instead, it emits every source row as an independent `tabularx`, so `multicols` can break between rows and continue in the next column. The same mechanism also allows rows to continue on later pages in one-column text. Column widths for natural columns are measured over the complete body before any row is emitted.

The packages should therefore be chosen according to the required layout. Use `longtable` for a conventional full-width multi-page table when its captions, page headers and footers, or footnote support are needed. Use `multicoltab` for a non-floating table or list that must flow through `multicols`, with optional explicit column or page continuations and heading repetition. `multicoltab` deliberately does not provide all of `longtable`'s features, and a source row remains its smallest unbreakable unit.

3 Installation and requirements

Copy `multicoltab.sty` into the document directory for a local installation, or install it in the user's or local TeX tree. The package automatically loads `xparse`, `array`, `tabularx`, and `keyval`. Load `multicol` separately when the `multicols` environment is needed:

```
\usepackage{multicol}
\usepackage{multicoltab}
```

The package is intended for LaTeX2e with a current `expl3` implementation. The examples in this distribution have been tested with pdfLaTeX.

4 The basic environment

The complete interface is:

```
\begin{multicoltab}[<options>]{<column specification>}
  <rows>
\end{multicoltab}
```

Every normal row uses the usual syntax:

```
left cell & right cell \\\
```

The final `\\` is optional. A `\\` inside braces is not treated as the end of an outer row. Use `\newline` for a line break inside a cell. A row is the smallest unbreakable unit; if it is taller than the available space, the complete row moves to the next column or page.

Here is a live example. The heading and the first few rows are ordinary content of the package environment:

Item	Description	Shield	Improves the character's defense.
Armor	Reduces the damage received by a character.	Torch	Provides light in dark places.

5 Options

The optional argument is a comma-separated key list.

Option	Default	Effect
<code>width</code>	<code>\linewidth</code>	Width of every emitted row.
<code>row-sep</code>	<code>Opt</code>	Vertical space after each row.
<code>break-penalty</code>	<code>0</code>	Preference for breaking after a row.

For example:

```
\begin{multicoltab}[width=.96\linewidth,row-sep=.6ex,
                    break-penalty=50]{@{}p{.3\linewidth}X@{}}
  Short label & A longer description that may wrap. \\
  Another label & Another description.
\end{multicoltab}
```

The `break-penalty` value affects normal rows only. A heading is kept with the following row regardless of this value.

6 Column specifications

The mandatory argument accepts the following direct column tokens:

Specification	Meaning
<code>l</code> , <code>c</code> , <code>r</code>	Natural-width aligned columns.
<code>p{width}</code>	Fixed-width, top-aligned paragraph column.
<code>m{width}</code>	Fixed-width, vertically centered paragraph column.
<code>b{width}</code>	Fixed-width, bottom-aligned paragraph column.
<code>X</code>	Paragraph column using the remaining table width.
<code>w</code> , <code>W</code>	Fixed-width single-line columns.

Array separators and modifiers remain available: `>{...}`, `<{...}`, `@{...}`, `!{...}`, and `|`. For example:

```
\begin{multicoltab}{@{}p{2cm}|>{\centering\arraybackslash}X|X@{}}
  Name & First value & Second value \\
  Armor & 2 & 5
\end{multicoltab}
```

Multiple `X` columns share the available width. Relative widths can be assigned with the usual `\hsize` technique:

```
\begin{multicoltab}
  {>{\hsize=.5\hsize}X>{\hsize=1.5\hsize}X}
  Short label & A wider description column.
\end{multicoltab}
```

The repeated-column form `*{n}{...}` is not supported by the column measurement pass; write repeated columns explicitly. Custom column type aliases are likewise not expanded while columns are measured.

The usual `array` parameters are available. In particular:

```
\tabcolsep      \arraystretch  \extrarowheight
\arrayrulewidth \doublerulesep  \extracolsep
```

Packages such as `booktabs` and `xcolor` provide their normal rule and row-colour commands when loaded by the document.

7 Headings

Use `\mthead` to declare and print a heading:

```
\mthead{\textbf{Item} & \textbf{Description}} \\
Armor & Reduces damage. \\
Shield & Improves defense.
```

The heading is kept with its following row. Optional material may be placed before and after the heading cells, which is useful for rules:

```
\mthead[\toprule][\midrule]
{\textbf{Item} & \textbf{Description}} \\
```

The last declared heading can be printed again in place with `\mtheadrepeat`:

```
\mtheadrepeat \\
```

Both `\mthead` and `\mtheadrepeat` must be complete source rows and must end with `\\`. A normal row can be formatted with the usual table commands immediately before its cells. For example, when `xcolor` is loaded:

```
\rowcolor{gray!20}
Rope & Useful for climbing and tying equipment. \\
```

8 Explicit continuation

Automatic heading repetition at every arbitrary `multicols` break is not reliable, because `multicol` decides its column break after receiving the rows. Use an explicit continuation when a repeated heading is required.

Inside `multicols`, `\multicoltabbreak` forces the next column and repeats the last declared heading:

```
\begin{multicols}{2}
\begin{multicoltab}{@{}p{1.8cm}X@{}}
  \mthead{\textbf{Item} & \textbf{Description}} \\
  Armor & Reduces damage. \\
  \multicoltabbreak \\
  Torch & Provides light.
\end{multicoltab}
\end{multicols}
```

Outside `multicols`, `\multicoltabpagebreak` forces the next page and repeats the heading:

```

\begin{multicoltab}{@{}p{1.8cm}X@{}}
  \mthead{\textbf{Item} & \textbf{Description}} \\
  Map & Helps avoid getting lost. \\
  \multicoltabpagebreak \\
  Rations & Food and water for the journey.
\end{multicoltab}

```

Both continuation commands require an earlier `\mthead`. Do not use `\multicoltabpagebreak` inside `multicols`; use `\multicoltabbreak` there instead.

9 Limitations

- The package does not assume two columns. It works with every `multicols` column count of at least two.
- A row cannot break internally. Very tall rows are moved as a whole.
- `\multirow` across source rows is not supported.
- Floats, captions, and footnotes retain the normal restrictions of `multicols`.
- The complete body is collected before rows are emitted. Avoid verbatim material such as `\verb` in cells; use a verbatim-safe command from another package when necessary.

10 Files in this distribution

File	Purpose
<code>multicoltab.sty</code>	The package file.
<code>multicoltab-doc.tex</code>	Source of this documentation.
<code>multicoltab-doc.pdf</code>	PDF documentation.
<code>README.md</code>	Short package overview and quick reference.
<code>LICENSE</code>	License notice.
<code>*-example.tex</code>	Small usage examples.
<code>*-example.pdf</code>	Compiled output of the examples.

11 License and contact

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Questions, bug reports, and suggestions may be sent to azanzani@gmail.com.