

# Indian T<sub>E</sub>X Users Group

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## On-line Tutorial on L<sup>A</sup>T<sub>E</sub>X

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## 8 Color tables in L<sup>A</sup>T<sub>E</sub>X

### 8.1 The `\colortbl` package

In the previous chapters we learnt how to construct tables in L<sup>A</sup>T<sub>E</sub>X that could span even to a number of pages. Here we shall see how to obtain color cells in tables, using David Carlisle's `colortbl` package. This package requires the `color` and `array` packages.

The `colortbl` package provides a number of commands using which one can obtain *really* colorful tables. We shall demonstrate each of these with the help of simple examples in the following sections.

#### 8.1.1 The `\columncolor` command

The format for the `\columncolor` command is

```
\columncolor[color model]{color}[left overhang][right overhang]
```

**Color model** It changes the current color to the argument specified until the end of the current group or the environment. The colors `black`, `white`, `red`, `green`, `blue`, `cyan`, `magenta`, and `yellow` should be predefined by any driver. Colors can also be defined by a package, as well as by the use of `\definecolor` command<sup>1</sup>.

**Color** It is an optional argument, and is like a specification to the color model given. This is particularly convenient if one wants to use a color without defining it initially.

**Left overhang** It controls the width of the panel past the widest entry in the column. It is also an optional argument, and takes the value `\tabcolsep` (in `tabular`) and `\arraycolsep` (in `array`).

**Right overhang** If omitted it defaults to the *left overhang*.

We have a few different tables below that will demonstrate a few possibilities using the `\columncolor` command.

one	two
three	four

```
\begin{tabular}{|l|r|}
\hline
{one} & {two} \\
{three} & {four} \\
\hline
\end{tabular}
```

In the following table both the overhangs are set to `0pt`.

<sup>1</sup> For instance, by using the command `\definecolor{myblue}{rgb}{.8,.85,1}`, you can have the color `myblue`.

one	two
three	four

```
|>{\columncolor{khaki}[Opt]}1|
>{\color{blue}\columncolor[gray]{.8}[Opt]}r|
```

The default overhang of `\tabcolsep` produces:

one	two
three	four

```
|>{\columncolor{khaki}}1|
>{\color{blue}\columncolor[gray]{.8}}r|
```

It is also possible to have colors like the one below! Using `\multicolumn` it is possible to change the color of specified rows of a table.

one	two
three	four

```
\multicolumn{1}{>{\color{blue}\columncolor[gray]{0.8}}1}{three} &
\multicolumn{1}{>{\columncolor{khaki}}r}{four}
```

### 8.1.2 The `\rowcolor` command

The `\rowcolor` command is helpful in case a table is made principally by rows. The arguments in `\rowcolor` are of the form as in `\columncolor`. Here's an example:

one	two
three	four
five	six

A `\multicolumn` command overrides the default colors for both the current row and column.

```
\begin{tabular}{|l|r|}
\hline
\rowcolor{lightturquoise} {one} & {two} \\
\rowcolor{honeydew} {three} & {four} \\
\multicolumn{1}{>{\color{blue}\columncolor[gray]{0.8}}1}{five} &
\multicolumn{1}{>{\columncolor{khaki}}r}{six} \\
\hline
\end{tabular}
```

## 8.2 More colors and tricks

In this section we'll see how to obtain even more colors: colored rules, colored space between two rules, and more.

- Colored rules can be easily obtained wherever desired by replacing the `|` with something like `!{\color{green}\vline}`.
- The above trick still leaves the spaces between `||` white. In order to obtain colored space one can remove the inter glue, and replace it by a colored rule. For instance,

```
!{\color{green}\vline}
@{\color{yellow}\vrule width \doublerulesep}
!{\color{green}\vline}
```

would change the color of the rules to green, and there would be another yellow rule of thickness equal to `\doublerulesep` between the two.

- `\arrayrulewidth` specifies the 'thickness' of the rules. The default is set to 0.4pt and can be changed by using, for instance, `\setwidth\arrayrulewidth{1pt}` to a value of 1pt.

- `\arrayrulecolor` takes the same arguments as `\color`. It can be specified at any point in the table. However, if given in the mid table it affects only the rules that are specified after that point, and any vertical rules in the table ‘preamble’ keep their original colors. For example, the command

```
\setlength\arrayrulewidth{1pt}\arrayrulecolor{blue}
```

would set the `\arrayrulewidth` to 1pt and the rule color to blue.

- `\doublerulesep` specifies the space between the double rules.
- `\doublerulesepcolor` works in the same way as `\arrayrulecolor`, and refers to the color between double rules.
- `\minrowclearance` is used for inserting space at any desired row.

### 8.3 Color tables with `\hline`

There are many advantages of using `\hline` (`hline` package) to draw horizontal rules instead of `\cline`. Firstly, `\hline` provides more flexibility in producing the rules particularly because of the way it *interacts* with the vertical lines. Moreover, sometimes the color of the lines produced by `\cline` doesn’t appear (rather it’s covered up by the color panels in the following row). So it becomes more appropriate if one uses the `–` rule type in a `\hline` argument.

The `\hline` command can be used to produce a single rule, or a double rule. `\hline` has arguments very similar to those in the ‘preamble’ of an array or tabular.

- `=` A double `hline` equal to the column width.
- `–` A single `hline` equal to the column width.
- `~` A column with no `hline`.
- `|` A `vline` which cuts through a double (or single) `hline`.
- `:` A `vline` which is broken by a double line.
- `#` A double `hline` segment between two `vlines`.
- `t` The top half of a double `hline` segment.
- `b` The bottom half of a double `hline` segment.
- `*` `*{3}{==#}` expands to `==#==#==#`, as in the `*`-form for the preamble.

We now demonstrate an example of the `\hline` command in the following table:

A table using <code>hline</code>		
S.No.	Col. 1	Col. 2
1	abc	def
2	pqr	lmn
3	uvw	xyz
n	pqr	lmn

```

\arrayrulecolor{white}
\begin{tabular}{>{\columncolor{honeydew}}c
  >{\columncolor{honeydew}}c|
  >{\columncolor{honeydew}}c}
\multicolumn{3}{>{\columncolor{wheat}}1}
  \textbf{A table using {\sf hline}}\
\rowcolor{white} \textbf{S.No.} & \textbf{Col. 1} &
  \textbf{Col. 2}
\arrayrulecolor{black}
\rowcolor{khaki}
{1} & {abc} & {def} \\ \hline ~-- \\
\rowcolor{lightsteelblue}
{2} & {pqr} & {lmn} \\ \hline ~-- \\
{3} & {uvw} & {xyz} \\ \hline ~-- \\
\rowcolor{white}
{n} & {pqr} & {lmn}
\end{tabular}

```

## 8.4 More Examples of Color Table

All these examples are taken from the  $\text{\TeX}$ Live CDROM. The first example is not a table, but a horizontally packed colorboxes.

cyan (C):	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
magenta (M):	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
yellow (Y):	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
black (K):	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9

```

\newcounter{Colr}
\setlength{\fboxsep}{2mm}
\begin{flushleft}
  \newcommand{\CBox}[1]{\colorbox[cmym]{.#1,0.,0.}{.#1}}
  \makebox[30mm][l]{cyan (C):}
  \whiledo{\value{Colr}<10}{\CBox{\theColr}\stepcounter{Colr}}\
  \renewcommand{\CBox}[1]{\colorbox[cmym]{0.,.#1,0.}{.#1}}
  \setcounter{Colr}{0}\makebox[30mm][l]{magenta (M):}
  \whiledo{\value{Colr}<10}{\CBox{\theColr}\stepcounter{Colr}}\
  \renewcommand{\CBox}[1]{\colorbox[cmym]{0.,0.,.#1}{.#1}}
  \setcounter{Colr}{0}\makebox[30mm][l]{yellow (Y):}
  \whiledo{\value{Colr}<10}{\CBox{\theColr}\stepcounter{Colr}}\
  \renewcommand{\CBox}[1]{\colorbox[cmym]{0.,0.,.#1}{.#1}}
  \setcounter{Colr}{0}\makebox[30mm][l]{black (K):}
  \whiledo{\value{Colr}<10}{\CBox{\theColr}\stepcounter{Colr}}
\end{flushleft}

```

LONDON					Price
Sydney	OG4G	Thu Oct 10	Mon Oct 21 or 28	11 or 18 days	999GBP
		Thu Oct 17	Mon Oct 21 or 28	4 or 11 days	999GBP
	OG7A	Sun Oct 13	Mon Oct 21 or 28	8 or 15 days	999GBP
		Sun Oct 20	Mon Oct 28	8 days	999GBP

This is a column colored table. The same table is made row coloured in the next one.

```
\setlength{\extrarowheight}{2mm}
\setlength{\tabcolsep}{2mm}
\begin{tabular}{|l|l|}
>\columncolor{yellow}c|c|>\columncolor{yellow}c|c|%
>\columncolor{red}\bfseries c<\textsc{GBP}}|}
\hline
\multicolumn{3}{>\columncolor{red}l}{\color{white}\textsf{LONDON}}
&\multicolumn{3}{>\columncolor{red}r}{\color{white}\textsf{Price}}
\\[1pt]
\hline
Sydney & OG4G & Thu Oct 10 & Mon Oct 21 or 28 & 11 or 18 days & 999\\
& & Thu Oct 17 & Mon Oct 21 or 28 & 4 or 11 days & 999\\
& OG7A & Sun Oct 13 & Mon Oct 21 or 28 & 8 or 15 days & 999\\
& & Sun Oct 20 & Mon Oct 28 & 8 days & 999\\
\hline
\end{tabular}
```

Sydney	OG4G	Thu Oct 10	Mon Oct 21 or 28	11 or 18 days	999
		Thu Oct 17	Mon Oct 21 or 28	4 or 11 days	999
	OG7A	Sun Oct 13	Mon Oct 21 or 28	8 or 15 days	999
		Sun Oct 20	Mon Oct 28	8 days	999

```
\setlength{\extrarowheight}{2mm}
\begin{tabular}{|l|c|c|c|c|c|c|}
\hline
Sydney & OG4G & Thu Oct 10 & Mon Oct 21 or 28 & 11 or 18 days & 999\\
\rowcolor[gray]{0.5}
& & Thu Oct 17 & Mon Oct 21 or 28 & 4 or 11 days & 999\\
& OG7A & Sun Oct 13 & Mon Oct 21 or 28 & 8 or 15 days & 999\\
\rowcolor[gray]{0.5}
& & Sun Oct 20 & Mon Oct 28 & 8 days & 999\\
\hline
\end{tabular}
```

See the rule colours have different ones in the following example.

United Kingdom	London	Thames
France	Paris	Seine
Russia	Moscow	Moskva

```
\setlength{\arrayrulewidth}{2pt}
\arrayrulecolor{green}
\begin{tabular}{|l|c|r|}
\arrayrulecolor{black}\hline
United Kingdom & London & Thames\\
\arrayrulecolor{blue}\hline
France & Paris & Seine \\
\arrayrulecolor{black}\cline{1-1}
\arrayrulecolor{red}\cline{2-3}
Russia & Moscow & Moskva \\ \hline
\end{tabular}
```

It is possible to keep some cells of a table in white while keeping the whole table in a

different colour.

<b>Table title</b>		
<b>Description</b>	<b>Column 1</b>	<b>Column 2</b>
Row one	mmmmm	mmmm
Row two	mmmm	mmm
Row three	mmmmm	mmmmm
Row four	mmmmm	mmmm
Totals	mmmmm	mmmmm

```
\newcommand{\CTPanel}[1]{%
  \multicolumn{1}{>{\columncolor{white}}r|}{#1}}
\setlength\fbboxsep{3mm}
\colorbox[cmk]{.40,0,0}{%
\begin{tabular}{l|r|r}
\multicolumn{1}{l|}
  {\large\textbf{Table title}}\|[2mm]
\textbf{Description} & \textbf{Column 1}
  & \textbf{Column 2} \|[1mm]\hline
Row one & \CTPanel{mmmmm} & \CTPanel{mmmm} \|[hline
Row two & \CTPanel{mmmm} & \CTPanel{mmm} \|[hline
Row three& \CTPanel{mmmmm} & \CTPanel{mmmmm}\|[hline
Row four & \CTPanel{mmmmm} & \CTPanel{mmmm} \|[hline
Totals & mmmm & mmmm
\end{tabular}}
```

<b>Table title</b>		
<b>Description</b>	<b>Column 1</b>	<b>Column 2</b>
Row one	mmmmm	mmmm
Row two	mmmm	mmm
Row three	mmmmm	mmmmm
Row four	mmmmm	mmmm
Totals	mmmmm	mmmmm

```

\definecolor{Blueb}{cmyk}{.40,0,0,0}
\definecolor{Blued}{cmyk}{.80,0,0,0}
\arrayrulecolor{white}
\begin{tabular}{>{\columncolor{Blued}}l
               >{\columncolor{Blued}}r|%
               >{\columncolor{Blued}}r}
  \multicolumn{3}{>{\columncolor{Blueb}}l}%
    {\large\textbf{Table title}}\|[2mm]
\rowcolor{white}
  \textbf{Description} & \textbf{Column 1}
                       & \textbf{Column 2} \|[1mm]
\arrayrulecolor{black}
\rowcolor{Blueb}
  Row one & mmmmm & mmmm \\\hhline{~--}
  Row two & mmmm & mmm \\\hhline{~--}
  Row three & mmmmm & mmmmm \\\hhline{~--}
  Row four & mmmmm & mmmm \\\hhline{~--}
\rowcolor{white} Totals & mmmmm & mmmmm
\end{tabular}

```

Table title		
Description	Column 1	Column 2
Row one	mmmmm	mmmm
Row two	mmmm	mmm
Row three	mmmmm	mmmmm
Row four	mmmmm	mmmm
Totals	mmmmm	mmmmm

```

\definecolor{Blueb}{cmyk}{.40,0,0,0}
\definecolor{Blued}{cmyk}{.80,0,0,0}
\definecolor{Bluee}{cmyk}{1.0,0,0,0}
\arrayrulecolor{black}
\setlength\arrayrulewidth{1mm}
\begin{tabular}{llrrl}
\rowcolor{Blueb}
  \quad&\multicolumn{3}{>{\columncolor{Blueb}}l}
        {\large\textbf{Table title}}&\quad\|[2mm]
\rowcolor{Blued}& \textbf{Description}
                & \textbf{Column 1}
                & \textbf{Column 2}& \|[2mm]
\hline
\rowcolor{Blued}& Row one & mmmmm & mmmm & \\\
\rowcolor{Blued}& Row two & mmmm & mmm & \\\
\rowcolor{Blued}& Row three& mmmmm & mmmmm& \\\
\rowcolor{Blued}& Row four & mmmmm & mmmm & \\\
\cline{2-3}
\rowcolor{Bluee}& Totals & mmmmm & mmmmm& \|[2mm]
\end{tabular}

```