

The verbatimbox Package

Routines for placing stylized verbatim text into boxes, useful
in places where the verbatim environment is inaccessible.
Secondarily, for adding vertical buffer around an object.

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January 30, 2014
v3.11

1 Description and Commands

The `verbatimbox` package allows verbatim material to be placed into L^AT_EX boxes, for later recall. This function is useful in several situations, primarily in places where the verbatim environment is otherwise inaccessible (for example, in the midst of a tabular environment). It is also useful if a given verbatim text needs to be recalled multiple times within a document.

One very nice feature of this package is the optional argument to both environments and macros that allows custom stylization of the verbatim text (fontshapes, sizes, numbering lines, *etc.*) through the use of pre-commands. For those who prefer this form of optional-argument customization, the environments and macros are *also* provided in a “no-box” form that is output directly, rather than being saved in a box. The no-box forms can be used when the verbatim has to span across page breaks.

While there is application for its use within the `verbatimbox` application, this package also offers an independent command for conveniently providing vertical buffer space above and below an object.

The environments and macros provided by this package are given as follows:

```
\begin{verbbox}[pre-commands]...\end{verbbox}
\begin{myverbbox}[pre-commands]{token}...\end{myverbbox}
\verbfilebox[pre-commands]{filename}
\theverbbox[t]
\boxtopsep = length
\boxbottomsep = length
\addvbuffer[length [below length]]{object}
\begin{verbnobox}[pre-commands]...\end{verbnobox}
\verbfilenobox[pre-commands]{filename}
```

`VerbboxLineNo` In addition, there is a counter, `VerbboxLineNo`, which contains the current verbatim line number being processed. Its use as part of the optional pre-

commands to `verbbox`, `myverbbox`, or `\verbfilebox` (in the form of `[\arabic{VerbboxLineNo}:]`) will cause the lines of the environment to be numbered.

1.1 The `verbbox` Environment

The `verbbox` environment places the content of the environment into a verbatim box. The box is not printed when the environment is closed. However, the box can be later recalled (even in a verbatim-restricted environment) by way of the command `\theverbbox`. Being placed into a box, it is important to remember that a \LaTeX box cannot span across page boundaries.

The width of the box into which the contents of the environment are placed is the width of the longest line in your environment, rather than the width of the page. This feature can be useful if the box is being recalled inline with other text, as in this example, shown immediately to the left.

The environment has one optional argument, which can contain commands that will be executed before each line of verbatim text is output. Thus, they can include font size, series, shape, or family changes affecting the appearance of the verbatim text in the box. They can also include printed matter, like a bullet

```
\begin{verbbox}[\(\bullet\)\hspace{1ex}]
first line
second line
third line
\end{verbbox}
\theverbbox

• first line
• second line
• third line
```

or, as mentioned earlier, the lines can be numbered:

```
\begin{verbbox}[\arabic{VerbboxLineNo}:\hspace{1ex}]
first line
second line
third line
\end{verbbox}
\theverbbox

1: first line
2: second line
3: third line
```

The customization can make use of the `VerbboxLineNo` counter in ways that make it line specific. Note that the optional argument must be contained on a single line.

```
\newcommand*{\ifline[3]{%
  \ifthenelse{\value{VerbboxLineNo} = #1}{#2}{#3}}
\newcommand*{\highlight{%
  \color{red}\rmfamily\itshape\bfseries\large\(\bullet~\)}
\newcommand\nohighlight{\arabic{VerbboxLineNo}:\hspace{1ex}}
\begin{verbbox}[\ifline{2}{\highlight}{\nohighlight}]
Line 1
Line 2
Line 3
\end{verbbox}
\theverbbox

1: Line 1
• Line 2
3: Line 3
```

1.2 The myverbbox Environment

With the `verbbox` environment, one is limited to one verbatimbox at a time, since each new environment invocation overwrites the prior box. A new environment, `myverbbox`, has therefore been introduced with version 3.0 of the package. It is very similar to `verbbox`, except that it is not recalled with the use of `\theverbbox`. In addition to the optional argument which functions like that in `verbbox`, `myverbbox` must be supplied a mandatory argument which is the command name that will recall the box contents.

This environment was created for the situation when there is a need to recall more than one verbatimbox in a given restricted environment. Here is an example where two verbatimboxes must be inserted into the tabular environment (where verbatim is prohibited):

```
\begin{myverbbox}{\vtheta}\theta\end{myverbbox}
\begin{myverbbox}{\valpha}\alpha\end{myverbbox}
\begin{tabular}{|c|c|} \hline
\valpha & $\alpha$ \\ \hline
\vtheta & $\theta$ \\ \hline
\end{tabular}
```

<code>\alpha</code>	α
<code>\theta</code>	θ

In this example the the command `\valpha` will recall a verbatimbox with the verbatim content `\alpha`. Likewise for `\vtheta`.

1.3 The `\verbfilebox` Command

The `\verbfilebox` command is comparable to the aforementioned environments, except that it is a command which takes the contents of a file specified in the mandatory argument and places it in a verbatimbox. Like `verbbox`, the boxed content can be recalled with an invocation of `\theverbbox`. The optional argument contains pre-commands and functions in the same manner as described for the `verbbox` environment.

1.4 The `\theverbbox` Command

As already mentioned in the prior sections, the `\theverbbox` command is issued to recall the contents of a box created by either the `verbbox` environment or the `\verbfilebox` command. This command can be issued in places where the verbatim environment is otherwise inaccessible, such as in the tabular environment or inside footnotes.

There is a `[t]` option to this command, which preconditions `\theverbbox` for environments where it will be framed, by adding 3pt (by default) of space above the boxed content, since the top of the box is otherwise clipped to the verbatim contents. So in the following example, the left invocation of `\theverbbox` is done without the `[t]` option, whereas for the right invocation, it is done with the `[t]` option. As you can see, the framing on the right-hand box is more symmetric.

1: first line	1: first line
2: second line	2: second line
3: third line	0.0pt 0.0pt3: third line

`\boxtopsep`
`\boxbottomsep`
`\addvbuffer`

If one wishes a different vertical-buffer preconditioning of `\theverbbox`, one can either reset the lengths `\boxtopsep` and `\boxbottomsep` or else one can use the `\addvbuffer` command described below.

1.5 The `\addvbuffer` Command

The prior section already showed how when a verbatimbox is framed, it may need some buffer space added above the box which is otherwise (by design) clipped to the verbatim content. While the `[t]` option will work for `\theverbbox`,

that option does not exist for any of the boxes created through the `myverbbox` environment. Furthermore, the user may sometimes wish to add an arbitrary vertical buffer above and below an object, without changing the underlying `\boxtopsep` and `\boxbottomsep` lengths associated with the `[t]` option of `\theverbbox`.

The `\addvbuffer` command is made to do this, and is useful in many situations inside and outside of `verbatimbox` manipulations. The mandatory argument to the command is the object over and under which to place vertical buffer. As of version 3.0 of this package, the command comes with an optional argument to specify how much buffer to use. If the optional argument is omitted, the buffer will be the amounts specified by the `\boxtopsep` and `\boxbottomsep` lengths.

The optional argument can take two forms. If the optional argument comprises a single length, that length is symmetrically added above and below the object. So, for example, `\fbox{\addvbuffer[5pt]{\theverbbox}}` will produce

```
1: first line
2: second line
3: third line
```

On the other hand, the optional argument may comprise two lengths, in which case the first length is added above the object and the second is added below the object. Thus, `\fbox{\addvbuffer[15pt 5pt]{\theverbbox}}` will produce

```
1: first line
2: second line
3: third line
```

But `\addvbuffer` need not only be used for `\theverbbox`. It can be used on other objects, for example a `\parbox`

```
This is a test
of the emer-
gency broadcast
system
```

or even on just plain text `\fbox{\addvbuffer[15pt 5pt]{A test}}`:

```
A test
```

It can even be used to remove vertical space from an objects size, by adding negative buffer `\fbox{\addvbuffer[-5pt -5pt]{A test}}`:

`\fbox{\addvbuffer[-5pt -5pt]{A test}}`

This ability to work on a variety of objects makes `\addvbuffer` a powerful command in many applications.

When length variables are being used in the optional argument to `\addvbuffer`, one must use the string form of them (prefixed with `\the`), as in

`\addvbuffer[\the\mysep]{A test}`

Likewise, if two length variables are to be used in the optional argument, an explicit space (backslash space) must be used to separate the arguments:

`\addvbuffer[\the\mytopsep\ \the\mybottomsep]{A test}`

1.6 The “nobox” Alternatives

`verbnobox`
`\verbfilenobox`

Alternatives are provided for the `verbbox` environment and the `\verbfilebox` macro, which output the content directly, rather than place it into a box. These alternatives are named `verbnobox` and `\verbfilenobox`. Like their boxed counterparts, these alternatives make use of the convenient optional pre-commands that allow for custom stylization of the verbatim content.

Because they are not placed into a box, but instead output directly, their content cannot be recalled at a later time in the document. While the boxed versions have a particular use in environments where verbatim is inaccessible, the no-boxed alternatives may be used when the content must span a page break.

2 Quirks

The use of a single optional argument for the `verbbox` environment has caused problems in the past, if the first item in the environment was a command, rather than text. This problem has been resolved as of version 3.0 of the package (for backward compatibility, we have kept the earlier incarnation of `verbbox`, now renamed as `origverbbox`). However, a few minor quirks remain even with the new version (which, incidentally, can be avoided by using the `myverbbox` environment). Note that the commands of this package do not enclose the created boxes in frames.¹ Thus, frames shown in these examples are for illustrative

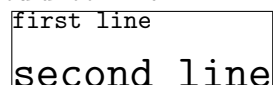
¹In all these examples, the `verbbox` material is explicitly placed in an `\fbox`, to expressly show the limits of the boxed material. Throughout this section, `\fboxsep` has been set to 0pt.

purposes only.

The primary quirk of `verbbox` is that its optional argument does not take effect until the second line (on the line following the environment invocation), so that

```
\begin{verbbox}[\LARGE]first line
second line
\end{verbbox}
\fbbox{\theverbbox}
```

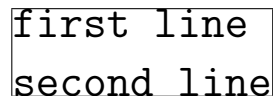
would look like:



The solution, in the presence of an optional argument, is to begin the first line of the environment contents on the following line. Thus,

```
\begin{verbbox}[\LARGE]
first line
second line
\end{verbbox}
\fbbox{\theverbbox}
```

will yield the expected result:



No such requirement is necessary if there are no optional arguments. So, for example, `\begin{verbbox}Hello World\end{verbbox}` will produce, upon issue of `\theverbbox`, the box “Hello World.” As with all verbatim environments, the `\end{verbbox}` must be followed by a linebreak, or the subsequent text on that line will be lost.

The `myverbbox` environment does not suffer the above quirk, so that `\begin{myverbbox}[\scriptsize]{\mybox}Hello World\end{myverbbox}` gives, upon issue of `\mybox`, the expected result: `Hello World`.

The optional argument of `verbbox` may contain both printing or nonprinting material. The printing material will appear (as `LATEX`, not as `verbatim`) at the beginning of every line of the `verbbox`. However, it is recommended to place nonprinting material at the lead of the optional argument, or the box width may be improperly set, as in this following example:

```
\begin{verbbox}[\rmfamily\textsc{Debug}:\footnotesize]
first line
```

```
second line
\end{verbbox}
\fbbox{\theverbbox}
```

```
DEBUG:first line
DEBUG:second line
```

Note how the box does not extend to the end of the text line. When placing printing commands before non-printing commands that change the fontsize, the reverse is also possible, where the box is set too large for the actual text.

The `myverbbox` environment behaves identically in this regard. Below we show the prior example, this time created in the `myverbbox` environment, except that the non-printing optional material has been placed before the printing optional material, so that the box size is correctly interpreted:

```
DEBUG:first line
DEBUG:second line
```

There are differences, however, in how `verbbox` and `myverbbox` process the optional argument, which relate to overcoming the problems associated with a single optional argument for the `verbbox` environment. In particular, while the `myverbbox` optional argument should behave as one would otherwise expect, the optional argument of `verbbox` will ignore spaces (which can be overcome with `\hspace{}`) and will choke on the dollar symbol (\$) as a way to enter and exit math mode (which can be overcome by using the `\(\)` syntax instead). Thus, an optional argument like

```
[\arabic{VerbboxLineNo}$\cdot$ ]
```

which works fine for `myverbbox`, would need to appear as

```
[\arabic{VerbboxLineNo}\(\cdot\)\hspace{1ex}]
```

in the `verbbox` environment. In that case, it would number the lines of the environment in the following manner:

1. first line
2. second line
3. third line

3 Acknowledgements

I would like to thank Dr. David Carlisle for his great assistance in helping me to understand the nuances of optional arguments used in verbatim environments, allowing me to correct a longstanding bug in the `verbbox` environment:

<http://tex.stackexchange.com/questions/109030/optional-arguments-in-verbatim-environments>

I would also like to acknowledge the use of three lines of code created by Prof.

Enrico Gregorio, to strip the leading backslash from a L^AT_EX command name
[http://tex.stackexchange.com/questions/42318/
removing-a-backslash-from-a-character-sequence](http://tex.stackexchange.com/questions/42318/removing-a-backslash-from-a-character-sequence)

4 Code Listing

```
\ProvidesPackage{verbatimbox}
[2014/01/30 v3.11
Routines for placing verbatim text into boxes, useful in places where
the verbatim environment is inaccessible.  Secondly, for adding
vertical buffer around an object.]
%
% This work may be distributed and/or modified under the
% conditions of the LaTeX Project Public License, either version 1.3
% of this license or (at your option) any later version.
% The latest version of this license is in
%   http://www.latex-project.org/lppl.txt
% and version 1.3c or later is part of all distributions of LaTeX
% version 2005/12/01 or later.
%
% This work has the LPPL maintenance status ‘maintained’.
%
% The Current Maintainer of this work is Steven B. Segletes.
%
% verbatimbox.sty is based on boxedverbatim environment found
% in moreverb.sty.
%
% An enabling routine, \addvbuffer[]{} shares some functional
% similarities to \raisebox, but it is not the same.
%
% 2.01 -Added LPPL License info to package
% 3.0  -Added myverbbox environment
%       -Corrected problem when no optional arguments are passed to
%         verbbox environment
%       -Added optional arguments to \addvbuffer
%       -Fixed \verbfilebox so that it restored \verbatim@processline
%       -Produced real documentation
% 3.01 -renamed \macro@name so as not to conflict with (I think) ltxdoc
%       package
% 3.1  -Corrected default argument to \addvbuffer so that it wouldn’t
%       break.  Also, gave better guidance in documentation to use
%       of optional argument to \addvbuffer
%       -Added verbnobox environment and \verbfilenobox macro
```

```

%      -Improved documentation showing line-specific optional arguments
% 3.11 -Eliminated the use of the stringstrings package, which resets
%      the definition of \l
\NeedsTeXFormat{LaTeX2e}
\@ifundefined{verbatim@processline}{\RequirePackage{verbatim}}{}
\usepackage{readarray}

% Following 3 lines thanks to Prof. Enrico Gregorio, from:
% http://tex.stackexchange.com/questions/42318/
% removing-a-backslash-from-a-character-sequence
\begingroup\lccode'\|='\\
\lowercase{\endgroup\def\removebs#1{\if#1|\else#1\fi}}
\newcommand{\@macro@name}[1]{\expandafter\removebs\string#1}
%

\global\newsavebox{\savedverbbox}
\newcounter{VerbboxLineNo}
%%%%ORIGINAL FORM%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% The verbbox environment is based on
% the boxedverbatim environment found in moreverb.sty
% The optional argument allows the user to modify properties of the text
% such as fontsize
%
\newenvironment{origverbbox}[1][{}]{%
  \def\verbatim@processline{%
    {\setbox0=\hbox{\the\verbatim@line}}%
    \hsize=\wd0 \the\verbatim@line\par}}%
  \@minipagetrue%
  \@tempwattrue%
  \setbox0=\vbox\bgroup #1 \verbatim
}
{%
  \endverbatim
  \unskip\setbox0=\lastbox %
  \egroup
  \global\sbox{\savedverbbox}{\box0}
}
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% David Carlisle provided the \verbbox@inner approach to avoid
% problem when no optional argument is provided to verbbox environment:
% http://tex.stackexchange.com/questions/109030/optional-arguments-in
% -verbatim-environments
\newcommand\verbbox@inner[1][{}]{\nfss@catcodes\scantokens{\gdef\@tmp{#1}}}%
\def\@tmp{}

\newenvironment{verbbox}{%

```

```

\setcounter{VerbboxLineNo}{-1}%
% FOR SOME REASON, USING \my@par INSTEAD OF \par PREVENTS EXTRA SPACE
% ABOVE verbbbox WHEN USING OPTIONAL ARGUMENTS
\let\my@par\par%
\def\verbatim@processline{%
% FIRST \@tmp APPLIES OPTIONAL ARGUMENT TO EACH VERBATIM LINE
% SECOND \@tmp MAKES SURE ANY PRINTED MATTER OF OPTIONAL ARGUMENT
% IS ACCOUNTED FOR IN VERBATIM BOX WIDTH
{\addtocounter{VerbboxLineNo}{1}%
\@tmp\setbox0=\hbox{\@tmp\the\verbatim@line}%
\hsize=\wd0 \the\verbatim@line\my@par}}%
\@minipagetrue%
\@tempswatrue%
\setbox0=\vbox\bgroup \verbatim\verbbox@inner%
}
{%
\endverbatim%
\unskip\setbox0=\lastbox %
\egroup%
\global\sbox{\savedverbbox}{\box0}%
\global\def\@tmp{}}%
}
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% The myverbbox environment is altered from verbbbox environment
% The optional argument allows the user to modify properties of
% the text such as fontsize
% The mandatory argument is a command which is formed so as to
% regurgitate the boxed content created within the environment
%
\newenvironment{myverbbox}[2][{}]{%
\setcounter{VerbboxLineNo}{0}%
\def\verbatim@processline{%
% THE FIRST #1 ACCOUNTS FOR NON-PRINTING COMMANDS; THE SECOND #1 IS FOR
% PRINTED OPTIONAL MATERIAL
{\addtocounter{VerbboxLineNo}{1}%
#1\setbox0=\hbox{#1\the\verbatim@line}%
\hsize=\wd0 \the\verbatim@line\par}}%
\@minipagetrue%
\@tempswatrue%
\global\edef\sv@name{\@macro@name{#2}}%
\@ifundefined{\sv@name content}{%
\expandafter\newsavebox\expandafter{\csname\sv@name content\endcsname}%
}%
\expandafter\global\expandafter\edef\csname\sv@name\endcsname{\usebox{%
\csname\sv@name content\endcsname}}%
\setbox0=\vbox\bgroup \verbatim

```

```

}
{%
  \endverbatim%
  \unskip\setbox0=\lastbox %
  \egroup%
  \global\sbox{\csname\sv@name content\endcsname}{\box0}%
}

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% The verbfilebox command is like the verbbox environment, but takes
% a file as input, rather than text typed into an environment.
% The optional argument allows the user to modify properties of the text
% such as fontsize
% Example: \verbfilebox[\scriptsize]{myfile}

\let\sv@verbatim@processline\verbatim@processline

\newcommand\verbfilebox[2][{}]{%
  \setcounter{VerbboxLineNo}{0}%
  \def\verbatim@processline{%
    {\addtocounter{VerbboxLineNo}{1}%
     #1\setbox0=\hbox{#1\the\verbatim@line}%
     \hsize=\wd0 \the\verbatim@line\par}}%
  \@minipagetrue%
  \@tempwatrue%
  \setbox0=\vbox\bgroup \verbatiminput{#2}
  \unskip\setbox0=\lastbox %
  \egroup
  \global\sbox{\savedverbbox}{\box0}
  \let\verbatim@processline\sv@verbatim@processline
}

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
\newcommand\theverbbox[1][x]{%
  \if #1t%
    % The t option is for outputting the savedverbbox inside a tabular
    % environment (else insufficient vertical space above box)
    \addvbuffer[\the\boxtopsep~\the\boxbottomsep]{\usebox{\savedverbbox}}%
  \else%
    \usebox{\savedverbbox}%
  \fi%
}

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% \addvbuffer is based on \fbox,
% but without a frame. Empty buffer space
% is added above and below the object, making a new box.

```

```

% An optional argument can specify the buffer spaces or, if no
% optional argument is specified:
% above the box is added \boxtopsep (initially 3pt) vertical space;
% below the box is added \boxbottomsep (initially 0pt) vertical space.
%
\newdimen\boxtopsep
\newdimen\boxbottomsep
\newdimen\ps@tempdima
\newbox\ps@tempboxa
\setlength\boxtopsep{3pt}
\setlength\boxbottomsep{0pt}
\long\def\add@vbuffer#1{\leavevmode\setbox\ps@tempboxa\hbox{#1}\ps@tempdima
  Opt \advance\ps@tempdima \dp\ps@tempboxa \hbox{\lower\ps@tempdima\hbox
    {\vbox{\hbox{\vbox{\vskip\boxtopsep \box\ps@tempboxa \vskip
      \boxbottomsep}}}}}}
}

\global\newlength\boxtop@sep
\global\newlength\boxbottom@sep
\newcommand\addvbuffer[2][\the\boxtopsep\ \the\boxbottomsep]{%
  \getargsC{#1}%
  \setlength\boxtop@sep{\argi}%
  \if1\narg\setlength\boxbottom@sep{\argi}\else%
    \setlength\boxbottom@sep{\argii}\fi%
  \add@vbuffer{#2}%
}

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% The following two "nobox" commands are basically versions of
% \verbatiminput and \verbatim that have been adapted to take the
% optional argument style of this package. No boxes are created,
% but breaking across page boundaries is not a problem here, as
% it would be with a box.

\newcommand\verbfilenobox[2][{}]{%
  \setcounter{VerbboxLineNo}{0}%
  \def\verbatim@processline{%
    {\addtocounter{VerbboxLineNo}{1}%
     #1\setbox0=\hbox{#1\the\verbatim@line}}%
    \hsize=\wd0 \the\verbatim@line\par}}%
  \verbatiminput{#2}
  \let\verbatim@processline\sv@verbatim@processline
}

\newenvironment{verbnobox}{%
  \setcounter{VerbboxLineNo}{-1}%
  % FOR SOME REASON, USING \my@par INSTEAD OF \par PREVENTS EXTRA SPACE

```

```

% ABOVE verbbbox WHEN USING OPTIONAL ARGUMENTS
\let\my@par\par%
\def\verbatim@processline{%
%   FIRST \@tmp APPLIES OPTIONAL ARGUMENT TO EACH VERBATIM LINE
%   SECOND \@tmp MAKES SURE ANY PRINTED MATTER OF OPTIONAL ARGUMENT
%   IS ACCOUNTED FOR IN VERBATIM BOX WIDTH
    {\addtocounter{VerbbboxLineNo}{1}%
     \@tmp\setbox0=\hbox{\@tmp\the\verbatim@line}%
     \hsize=\wd0 \the\verbatim@line\my@par}}%
\verbatim\verbbbox@inner%
}
{%
\endverbatim%
\global\def\@tmp{}}%
}

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\endinput

```