

The `slowbox`* package

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1 User guide

The problem is that some things, e.g., diagrams, can take a while to typeset, and aren't particularly interesting as far as the global document layout is concerned. Once you've got a diagram right, the only thing that matters as far as general previewing is concerned is its size.

The solution is `slowbox`. Put things you're usually not interested in seeing in a `slowbox` environment. Then they get replaced by a frame saying that there's meant to be something there, and that's it.

There are two modes, chosen by package options: `show` and `hide`. The default is `show` mode, because I had to pick one. In `show` mode, everything happens normally; in `hide` mode, slow boxes are replaced by frames. In order for the package to know the sizes of all of your boxes, you must first run through once in `show` mode. Thereafter, all should be well.

`slowbox` In `show` mode, the `slowbox` environment typesets its contents in LR-mode (for \TeX nicians, restricted horizontal mode).¹ In `hide` mode, the boxes are replaced by frames, and \TeX will skip over the contents of the environment at high speed, ignoring it completely.

The `slowbox` environment needs an argument, a *tag* which is used to identify this box. This is needed because otherwise the package has no way of deciding that you've inserted some new box and need to shunt everything about. So the full syntax is `\begin{slowbox}{<tag>} . . . \end{slowbox}`. Tags can be any piece

*The `slowbox` package is currently at version 1.0, dated 27 August 2003.

¹Vertical mode causes all sorts of pain, and makes things way too wide. Horizontal mode seems a good 'standard currency' for \LaTeX things like diagrams.

of text. If you include control sequences in the tag, then they get expanded. That might be what you want.

`slowbox*` Adding new slow boxes is best done using the starred version of the environment. Stuff in a `slowbox*` environment is always typeset in `show` mode, regardless of the global mode setting. The right thing to do is wrap your new stuff in a `slowbox*` while you're writing it. Then remove the `*` and it will turn into a frame. The `slowbox*` environment takes a tag name, just like `slowbox` does.

`\slowboxbegin` It's useful to define your own commands environments which create slow boxes.
`\slowboxend` Often, though, what happens is that you want to put some stuff *inside* the slow box, but that doesn't work properly. What you must do instead is say something like

```
\newenvironment{splunt}[1]
  {...\slowboxbegin{#1}{...\startsplunt...}}
  {\slowboxend{...\finishsplunt...}...}
```

That is, `\slowboxbegin{<tag>}{<stuff>}` starts a slow box, beginning with `<stuff>` if we're in `show` mode.

The `\slowboxbegin` command has a `*`-variant, which causes the box to be typeset regardless of the current mode setting.

`\newslowboxenv` There's an environment for building slow box environments. Say `\newslowboxenv{<env-name>} [n-args] {<before-text>} {<start-text>} {<end-text>} {<after-text>}`. This creates a new environment (just like with `\newenvironment`). The contents are put in a slow box with `<start-text>` on the front and `<end-text>` on the end. Before the box is begun, `<before-text>` is performed, and `<after-text>` is done afterwards. The environments so created have `*`-variants which ignore the current mode, just like `slowbox*`. They also gather an additional `<tag>` argument, which you don't have to bother with.

`\doslowbox` Finally, for commands, there's `\doslowbox{<tag>}{<stuff>}`. This typesets `<stuff>` in a slow box with the given tag. There's a `*`-variant, of course.

`\slowboxshow` The declarations `\showboxshow` and `\slowboxhide` switch between the `show`
`\slowboxhide` and `hide` modes. They obey standard scoping rules. They're probably not very
`\ifslowboxshow` useful. They twiddle the `\ifslowboxshow` macro, which is an old-fashioned Plain
`\boolean{slowboxshow}` TeX switch. If you're the sort of person who uses `ifthen`, then you can test `\boolean{slowboxshow}`.

2 Implementation of `slowbox`

1 `<*package>`

2.1 The mode switch

`\ifslowboxshow` The `\if@slowboxshow` switch remembers which mode we're in. The
`\slowboxshow` `\slowboxshow` and `\slowboxhide` macros flip the switch. It's really easy. The
`\slowboxhide` `\relaxes` are to annoy people who say `\global\showboxshow`.

```
2 \def\slowboxshow{\relax\let\ifslowboxshow\iftrue}
3 \def\slowboxhide{\relax\let\ifslowboxshow\iffalse}
```

2.2 Dependencies

The skipping-over-stuff-at-high-speed is done by my sverb package.

```
4 \RequirePackage{sverb}
```

2.3 Options

Oh, this is obvious.

```
5 \DeclareOption{show}{\slowboxshow}
6 \DeclareOption{hide}{\slowboxhide}
7 \ExecuteOptions{show}
8 \ProcessOptions
```

2.4 Remembering stuff

`\sb@def` Box dimensions are recorded in the .aux file using `\sb@def{<tag>}{<width>}{<height>}{<depth>}`. This turns into a definition of a strange control sequence.

```
9 \def\s@def#1#2#3#4%
10 {\expandafter\gdef\csname sb@box:#1\endcsname{#2}{#3}{#4}}
```

2.5 The actual work

`\sb@begin` This is where most of the intelligence is. `\sb@begin{<tag>}{<stuff>}` starts a slow box, putting `<stuff>` at the start if we're in show mode. It doesn't ignore stuff – though it sets `\sb@ignore` to be `\relax` in show mode and `\ignore` in hide mode. It also sets `\sb@end` correctly, so that `\sb@end{<stuff>}` ends the current box, putting `<stuff>` in it.

Disappointingly, perhaps, this is in fact just a dispatcher to the right implementation.

```
11 \def\s@begin{%
12   \ifslowboxshow\expandafter\s@begin@show%
13   \else\expandafter\s@begin@hide\fi%
14 }
```

`\sb@begin@show` Now we have the implementation for show mode. This is sometimes called directly, by *-variants. Needs to be `\long` because `<stuff>` might contain embedded `vmode`-material which could legitimately have `\par` tokens in.

```
15 \long\def\s@begin@show#1#2{%
16   \begingroup%
17   \def\s@end##1{%
18     ##1%
19     \color@endgroup%
20     \egroup%
21     \immediate\write\@auxout%
22     {\string\s@def{#1}{\the\wd\z@}{\the\ht\z@}{\the\dp\z@}}%
23     \leavevmode\box\z@%
24     \endgroup%
25   }%
26   \let\s@ignore\relax%
27   \setbox\z@\hbox\bgroup\color@begingroup#2%
28 }
```

`\sb@begin@hide` Now for something a bit stranger. If we're in `hide` mode, we need to find out whether we've saved information about this box before. We pass the *control sequence* containing the box dimensions to another macro. Needs to be `\long` to collect the *stuff* argument.

```
29 \long\def\sbegin@hide#1#2{%
30   \begingroup%
31   \def\s@end##1{\endgroup}%
32   \let\s@ignore\ignore%
33   \expandafter\s@hidden\cname sb@box:#1\endcsname{#1}%
34 }
```

`\sb@hidden` We're given the control token and the tag name. If the control sequence is like `\relax` then `\cname` must have invented it and we just have to make something up. Otherwise we put the right stuff in a frame. Don't forget to write out the box dimensions to the new aux file!

```
35 \def\s@hidden#1#2{%
36   \ifx#1\relax\fbbox{Unknown slow box \texttt{#2}!}%
37   \else\edef\next@{\noexpand\s@hidden@i#1{#2}}\expandafter\next@\fi%
38 }
39 \def\s@hidden@i#1#2#3#4{%
40   \frameonly{#1}{#2}{#3}{\omitted \texttt{#4}}%
41   \immediate\write\@auxout{\string\s@def{#4}{#1}{#2}{#3}}%
42 }
```

2.6 Stuff in frames

`\frameonly` `\frameonly{<width>}{<height>}{<depth>}{<stuff>}` typesets *stuff* in a frame with the given dimensions. This is a bit tricky – we want the *stuff* in the middle of the box, but the box's reference point is somewhere else. We start with a `\vcenter` of the right height, and then nudge it into position later.

In case the label is just too big, put shrinky glue all round. It'll look horrible, but at least it won't mess everything up.

```
43 \def\frameonly#1#2#3#4{%
44   \dimen\tw@#2\advance\dimen\tw@#3\advance\dimen\tw@-.8\p@%
45   \setbox\z@\hbox{\vcenter{\hrule\@height\dimen\tw@\@depth\z@}}%
46   \dimen@#1%
47   \advance\dimen@-.8\p@%
48   \setbox\z@\vbox{%
49     \hrule\vss%
50     \hb@xt@\dimen@{%
51       \vrule\@height\ht\z@\@depth\dp\z@\hss%
52       \advance\dimen@-2em%
53       \parbox\dimen@{\centering#4}%
54       \hss\vrule}%
55     \vss\hrule%
56   }%
57   \dimen@#3\advance\dimen@-\dp\z@%
58   \setbox\z@\hbox{\lower\dimen@\box\z@}%
59   \leavevmode\box\z@%
60 }
```

2.7 User commands

`\slowboxbegin` This is just a matter of using the machinery we've built already.

```
\slowboxend 61 \def\slowboxbegin{\@ifstar{\sb@go\sb@begin}{\sb@go\sb@begin@show}}
62 \long\def\sb@go#1#2#3{#1{#2}{#3}\sb@ignore}
63 \def\slowboxend{\sb@end}
```

`\doslowbox` And this too.

```
64 \def\doslowbox{\@ifstar{\sb@do\sb@begin}{\sb@do\sb@begin@show}}
65 \long\def\sb@do#1#2#3{#1{#2}{#3}\sb@end}
```

`\newslowboxenv` Something a bit more interesting now. Gathering the optional arguments for `\newenvironment` is a bit tedious, but we do it anyway. Picking up the arguments for the environment is a bit tricky – they come in the wrong order, unfortunately.

```
66 \def\newslowboxenv#1{\@ifnextchar[{\sb@nenv@i{#1}}{\sb@nenv@do{#1}{}}}
67 \def\sb@nenv@i#1[#2]{%
68   \@ifnextchar[{\sb@nenv@ii{#1}{{#2}}}{\sb@nenv@do{#1}{{#2}}}%
69 }
70 \def\sb@nenv@ii#1#2[#3]{\sb@nenv@do{#1}{#2}{{#2}}}
71 \long\def\sb@nenv@do#1#2#3#4#5#6{%
72   \newenvironment{#1}#2{#3\sb@env\sb@begin{#4}}{\sb@end{#5}#6}%
73   \newenvironment{#1*}#2{#3\sb@env\sb@begin@show{#4}}{\sb@end{#5}#6}%
74 }
75 \def\sb@env#1#2#3{#1{#3}{#2}\sb@ignore}
```

`slowbox` And the slowbox is built using the above equipment.

```
76 \newslowboxenv{slowbox}{}{}{}
77 </package>
```

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