1 Introduction

showkeys.sty modifies the \label, \ref, \pageref, \cite, and \bibitem commands so that the 'internal' key is printed. The package tries hard to position these labels so that the formatting of the rest of the document is unchanged. \label and \bibitem cause the key to appear in a box either in the margin, or in a \TeX box of zero width, which may possibly over-print other text. The \ref, \pageref and \cite commands print their arguments in small type, raised just above the line, like this: 1. This package works with the fleqn option, the packages in the AMS-\TeX collection, and the varioref, natbib and harvard packages.

2 Package Options

Some people have commented that the printing of the \ref and \cite keys is less useful than the printing of the \label keys and so showkeys now supports two options that can be given in the \usepackage command:

- \texttt{notref} to stop the redefinition of \ref and \pageref, and related commands from the varioref package.
- \texttt{notcite} to stop the redefinition of \cite and related commands from the harvard and natbib packages.

So if the package is loaded with \texttt{\usepackage[notref]{showkeys}} then \ref will have its standard definition, but \label will print its key argument (usually in the margin).

If you find the printed keys distracting, but don't want to use the above options to stop them altogether you may use:

- \texttt{color} Print the keys in a distinguishing colour. The default value is a light grey.

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The colours may be changed by redefining the following two colours after the
package is loaded. refkey (also used for \cite) and labelkey (also used for
\bibitem). The defaults are:

\definecolor{refkey}{gray}{.75}
\definecolor{labelkey}{gray}{.75}

If this option is used the color package will be loaded.
The package accepts two further options.

**final** to suppress the action of this package, for ‘final’ versions.

**draft** the normal behaviour of this package.

Clearly there is not much point in entering the **final** option directly in the
\usepackage command, as just not loading this package would have the same
effect, and execute more quickly, however the **final** option may be useful as it
may be used once in the documentclass command to affect any number of pack-
egages that may be loaded. The **draft** option does not do anything, but is there to
honour an informal convention that packages have these options in pairs.

You can also control the appearance of the typeset label with the command
\showkeyslabelformat, which takes one argument. The default is

\providecommand*{\showkeyslabelformat}[1]{\fbox{\normalfont\small\ttfamily#1}}

The command is called inside a group so you can put in local modifications of
\fboxsep, for instance, without them leaking to the rest of the document.

### 3 More Examples

The only other similar package that I could find in the macro index, DMJ:mi
[3], was showlabels.sty, GN:sl[1]. After the first draft of this package was written, I found
anon:sk[2] on my local installation! I think the current package is more robust than [2], but
I thought that showkeys was rather a good name, so I have stolen it for this file.

<table>
<thead>
<tr>
<th>e\textsuperscript{1}</th>
<th>1. This has \label immediately after \item.</th>
</tr>
</thead>
<tbody>
<tr>
<td>e\textsuperscript{2}</td>
<td>2. This has the \label at the end.</td>
</tr>
</tbody>
</table>

A minipage :-

```
\begin{minipage}{\textwidth}
\begin{enumerate}
\item This has \label immediately after \item.
\item This has the \label at the end.
\end{enumerate}
\end{minipage}
```

Displayed math (without \equation counter).

\[ 0 = 0 \]
Some text referring to the maths on page 2, and the item 1.

If showkeys thinks that the current environment is going to produce an “equation number”, then it does not show the label where the \label command occurs, but tries to put it in the margin, as shown with equation 1. The package ‘knows’ about the standard equation and eqnarray environments, and also all the numbered alignment environments offered by the AMS\LaTeX{} package, amsmath.

\begin{align*}
1 &= 1 & (1) \\
2 &= 2 & (2) \\
3 &= 3 \\
4 &= 4 & (3)
\end{align*}

Within a figure environment, the \label must not come before the \caption command. If you place \label inside the argument of \caption the label will be shown like this:

Figure 1: Within the caption argument.

If you place \label immediately after the \caption command it will be shown like this:

Figure 2: Immediately after the caption argument.

If you place the \label command at some random point after the \caption command, it may be shown like:

Figure 3: In vertical mode not immediately after a box.

**References**

[1] Gil Neiger, *showlabels.sty*, Undated package, similar to this one, but shows labels inline, affecting the formatting of the document.


[3] David M. Jones, *\TeX{} Macro Index*, A catalogue of \TeX{} macros, including \LaTeX{} packages, available from all good \TeX{} archives.

### 4 The Macros

1 (*package*)

First we handle the options. Normally all related commands are defined to show their ‘keys’. But since v3.03 one can specify:

\footnote{Actually \marginpar is not used at all in this package now.}
\let\SK@ref\@empty
\let\SK@cite\@empty
\let\SK@refcolor\relax
\let\SK@labelcolor\relax
\def\SK@refcolor{\color{refkey}}
\def\SK@labelcolor{\color{labelkey}}
\let\SK@label\label
\let\SK@bibitem\@bibitem
\let\SK@lbibitem\@lbibitem
\def\@bibitem#1{\SK@bibitem{#1}\SK@\SK@@label{#1}\ignorespaces}
\def\@lbibitem[#1]#2{\SK@lbibitem[{#1}]{#2}\SK@\SK@@label{#2}\ignorespaces}
\SK@ \SK@ Grab hold of #2 via \meaning so characters like & and ^ do not cause problems later, and pass the result on to the command #1.
\def\SK@#1#2{\protected@edef\@tempa{#2}\expandafter#1\meaning\@tempa\SK@}
\begin{quote}
notref to stop the redefinition of \ref (and \pageref, and related commands from varioref package),
notcite to stop the redefinition of \cite and related commands from the harvard and natbib packages.
\end{quote}
2 \DeclareOption{notref}{\let\SK@ref\@empty}
3 \DeclareOption{notcite}{\let\SK@cite\@empty}
\SK@refcolor
\SK@labelcolor
Colour commands. Normally no-op.
4 \let\SK@refcolor\relax
5 \let\SK@labelcolor\relax
\color option loads the color package and defines the colours. Delayed to the end of the package as package loading not allowed in this option section.
6 \DeclareOption{color}{\AtEndOfPackage{%
7 \RequirePackage{color}%
8 \definecolor{refkey}{gray}{.75}%
9 \definecolor{labelkey}{gray}{.75}%
10 \def\SK@refcolor{(\color{refkey})}%
11 \def\SK@labelcolor{(\color{labelkey})}{}%}}
Allow final to be specified in the document class options to suppress the loading of this package.
12 \DeclareOption{final}{%
13 \providecommand*\showkeyslabelformat[1]{}%
14 \endinput}
15 \DeclareOption{draft}{}%}
16 \ProcessOptions
\SK@label
\SK@bibitem
\SK@lbibitem
The saved original definitions
17 \let\SK@label\label
18 \let\SK@bibitem\@bibitem
19 \let\SK@lbibitem\@lbibitem
\label The new definition, print the argument, and then do the old definition.
20 \def\label#1{%21 \@bsphack
22 \SK@SK@@label{#1}%
23 \begingroup
24 \SK@label{#1}%
25 \endgroup
26 \@esphack}
\SK@\SK@\SK@ For \bibitem, position the showkeys code as for a standard list with \item and label.
27 \def\@bibitem#1{%28 \SK@bibitem(#1)\SK@SK@label(#1)\ignorespaces
29 \def\@bibitem[#1]{#2}\SK@SK@label(#2)\ignorespaces
30 \SK@SK@{#1}#2\SK@SK@{#2}#2\ignorespaces
Strip off the initial segment of the \textit{meaning} output, and then put the rest either in a \texttt{marginpar} or in a box of size 0pt, hopefully not disturbing the surrounding text.

Need to work globally as in some cases like alignments, and \texttt{fleqn}, the counter will be printed in a different group to the \texttt{label} command.

If the \texttt{label} is straight after \texttt{item} (\texttt{bibitem} is handled by this case as well) then the item label has not been added to the page yet. It is hanging around in the box \texttt{@labels} waiting for the paragraph to start. So just need to attach the label to this box.

If we insert a box into the main vertical list, do not want to change \texttt{prevdepth} as that would affect vertical spacing in the document. (The box itself should not cause any difference in break points as there is a node there anyway coming from the \texttt{write} to the aux file.

The inner vertical mode cases are mainly designed to do the right thing with float captions, but seem to work OK in other cases as well.

In inner vertical mode, attach the label to the right of the immediately preceding box, if it is a box before the current point. Otherwise just put it in a box of zero dimensions, with no interline skip. (This may slightly move the surrounding text (but perhaps not now that \texttt{prevdepth} is restored.)

In outer vertical mode, previously used a \texttt{vadjust} at the start of the next paragraph (and before that used \texttt{marginpar}). These methods sometimes cause extra
space, e.g. if paragraph starts with a math display, so now just insert the box
directly, taking care not to change \texttt{\textbackslash prevdepth}.

\texttt{\llap{\textbackslash SK@lab\textbackslash SK@lab@relax\textbackslash kern\textbackslash marginparsep}}% 
\texttt{\textbackslash fi}

Restore \texttt{\textbackslash prevdepth}.

\texttt{\textbackslash prevdepth\textbackslash dimen@}
\texttt{\textbackslash fi}
\texttt{\textbackslash else}

If we are in an numbered equation-style environment, do nothing as the code
to print the number will also print the label, otherwise just stick the label at the
current point, in a box of zero dimensions.

\texttt{\textbackslash csname SK@\textbackslash currenvir\textbackslash endcsname}
\texttt{\textbackslash ifSK@equation\textbackslash else}
\texttt{\textbackslash ifmmode}
\texttt{\textbackslash SK@labx}
\texttt{\textbackslash else}

Inner horizontal mode. Not much we can do, just stick it here.

\texttt{\textbackslash ifinner}
\texttt{\textbackslash rlap\textbackslash SK@lab}
\texttt{\textbackslash else}

In outer horizontal mode use \texttt{\textbackslash vadjust} to get to the margin.

\texttt{\textbackslash vadjust{\textbackslash llap{\textbackslash SK@lab\textbackslash kern\textbackslash marginparsep}}}%
\texttt{\textbackslash fi}
\texttt{\textbackslash \textbackslash SK@lab@relax}
\texttt{\textbackslash fi}
\texttt{\textbackslash \textbackslash fi}
\texttt{\textbackslash \textbackslash fi}
\texttt{\tagform@}

Firstly we grab \texttt{\textbackslash @eqnnum}.

\texttt{\textbackslash @eqnnum}
\texttt{\texttt{\textbackslash maketag@@@}}

Then check for \texttt{amsmath} where we grab the internal commands \texttt{\tagform@} and
\texttt{\maketag@@@}. Redefine them and redefine \texttt{\textbackslash @eqnnum} as well.

\texttt{\textbackslash @ifpackageloaded{amsmath}{}}
\texttt{\textbackslash let\textbackslash SK@tagform@\textbackslash tagform@}
\texttt{\textbackslash let\textbackslash SK@maketag@@@\textbackslash maketag@@@}
\texttt{\textbackslash iftagslleft@}
\texttt{\textbackslash def\textbackslash tagform@#1{}}
\texttt{\textbackslash ifx\textbackslash df@label\textbackslash empty}
\texttt{\textbackslash SK@lab@relax}
\texttt{\textbackslash else}
\texttt{\textbackslash expandafter\textbackslash SK@label\textbackslash meaning\textbackslash df@label\textbackslash SK@}
\texttt{\textbackslash fi}
\texttt{\textbackslash llap{\textbackslash SK@lab\textbackslash kern\textbackslash marginparsep}}%
\texttt{\textbackslash SK@lab@relax\textbackslash SK@tagform@(#1)}%
\texttt{\textbackslash def\maketag@@@#1{}}
\texttt{\textbackslash ifx\textbackslash df@label\textbackslash empty}
\texttt{\textbackslash SK@lab@relax}
\texttt{\textbackslash else}
\texttt{\textbackslash expandafter\textbackslash SK@label\textbackslash meaning\textbackslash df@label\textbackslash SK@}

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Almost the same for tags on the right, except we use \rlap and typeset it after the tag.

If amsmath wasn’t loaded we check explicitly if the leqno option was used in \documentclass and redefine accordingly.

\SK@labx Print the label, and then globally reset the print command to \relax.

\SK@lab@relax Clear the label.
The following environments print an equation number, so \label should not print its argument at the point where it appears. Note this will fail to show the label if you are in an eqnarray environment, and use \label together with \nonumber This might just about make sense if you are going to use \pageref, but that is too bad...

138 \newif\ifSK@equation
139 \let\SK@equation\SK@equationtrue
140 \let\SK@eqnarray\SK@equationtrue

\texttt{eqnarray} When the AMS packages are loaded showkeys assumes environments work ‘The AMS way’ However eqnarray (unlike equation) is not redefined, so here we need to remove some of the AMS hacks.
141 \toks0\expandafter{\eqnarray}
142 \edef\eqnarray{\let\noexpand\tagform@\noexpand\SK@tagform@\the\toks0}

\texttt{SK@align} The AMS environments
143 \let\SK@align\SK@equationtrue
144 \let\SK@alignat\SK@equationtrue
145 \let\SK@xalignat\SK@equationtrue
146 \let\SK@gather\SK@equationtrue
147 \let\SK@multline\SK@equationtrue
148 \let\SK@flalign\SK@equationtrue
149 \let\SK@equation*\SK@equationtrue

\texttt{SK@align*} Starred versions of the AMS environments.
150 \expandafter{\let\csname SK@align\endcsname\SK@equationtrue}
151 \expandafter{\let\csname SK@alignat\endcsname\SK@equationtrue}
152 \expandafter{\let\csname SK@xalignat\endcsname\SK@equationtrue}
153 \expandafter{\let\csname SK@gather\endcsname\SK@equationtrue}
154 \expandafter{\let\csname SK@multline\endcsname\SK@equationtrue}
155 \expandafter{\let\csname SK@flalign\endcsname\SK@equationtrue}

\texttt{SK@def} This macro redefines a command \#1. The new definition can make use of the old definition as \texttt{SK@old name}. If \#1 is really a \texttt{protect}’ed command with the real definition in a ‘space’ command then the ‘space’ version is used as the old definition. Need to test this for each command as some package may have changed the status of a command to being ‘protected’. The new definition is made as if with \texttt{DeclareRobustCommand}, but with \texttt{def} syntax for the argument specification.
156 \def\SK@def#1{\%
157 \edef@tempa{\expandafter{\@gobble\string#1}}\%
158 \ifundefined{\@tempa\space}%
159 \{\expandafter{\let\csname SK@@tempa\endcsname#1}}\%
160 \{\expandafter{\let\csname SK@\@tempa\endcsname\expandafter{\endcsname}}\%
161 \csname\@tempa\space\endcsname\%
162 \expandafter{\def\expandafter{#1}\expandafter{}}\%
163 \expandafter{\protect{\csname\@tempa\space\endcsname}}\%
164 \expandafter{\def{\csname\@tempa\space\endcsname}}\%
165 \ifx\SK@ref@empty
166 The next section redefines \texttt{\ref} and \texttt{\pageref} (unless the notref option was given).
167 \ifx\SK@ref@empty
168 8
Even if notref option is used, need to fudge the varioref commands as they use \label internally.

\AtBeginDocument{%
\@ifpackageloaded{varioref}{%
\def\vr@f#1{\leavevmode\unskip\vref@space \ref{#1}}%
}
}\else
\AtBeginDocument{%
\SK@def\ref#1{\SK@SK@@ref{#1}\SK@ref{#1}}%
\SK@def\pageref#1{\SK@SK@@ref{#1}\SK@pageref{#1}}%
}
\fi

\ref \pageref

Save the redefinition to \begin{document} so that this package can work with packages that redefine \cite. Tested with harvard and natbib packages. Also add code at this point to support varioref.

\AtBeginDocument{%
\SK@def\@vpageref#1[#2]#3{{\let\label\SK@label\SK@@@vpageref{#1}[{#2}]{#3}}}%
\def\vr@f#1{\leavevmode\unskip\vref@space \ref{#1}}%
}\fi

\@ifpackageloaded{varioref}{%
\let\label\SK@label\let\ref\SK@ref\let\pageref\SK@pageref
\leavevmode\unskip\SK@SK@@ref{#3}\SK@@@vpageref{#1}[{#2}]{#3}}%
\def\vr@f#1{\leavevmode\unskip\vref@space \ref{#1}}%
\AtBeginDocument{%
\SK@def\@vpageref#1[#2]#3{{\let\label\SK@label\SK@@@vpageref{#1}[{#2}]{#3}}}%
\def\vr@f#1{\leavevmode\unskip\vref@space \ref{#1}}%
}
\fi

Now redefine \cite unless notcite option given.

\ifx\SK@cite@empty
\AtBeginDocument{%
\@ifundefined{\HAR@checkdef}{%
\expandafter\let\expandafter\SK@HAR@bi\csname\string\harvarditem\endcsname
\expandafter\def\csname\string\harvarditem\endcsname[#1]#2#3#4{%
\SK@HAR@bi[[#1]#2#3#4]\SK@SK@label{#4}}%
\fi
}\else
\AtBeginDocument{%
\@ifundefined{\HAR@checkdef}{%
\expandafter\let\expandafter\SK@HAR@bi\csname\string\harvarditem\endcsname
\expandafter\def\csname\string\harvarditem\endcsname[#1]#2#3#4{%
\SK@HAR@bi[[#1]#2#3#4]\SK@SK@label{#4}}%
\fi
}\else
\fi

Standard (non-harvard) support, including extra cite commands from natbib and cite.
If cite or overcite is being used, redefine \citen rather than \cite so as not to spoil the space and punctuation calculations done by those packages.

```
\ifx\citen@undefined
\SK@def\@citex[#1]{\SK@citex[#1]{#2}}\%
\else
\SK@def\citen{\SK@\SK@@ref{#1}\citen{#1}}\%
\fi
\SK@def\citeauthor{\SK@\SK@@ref{#1}\citeauthor{#1}}\%
\SK@def\citefullauthor{\SK@\SK@@ref{#1}\citesfullauthor{#1}}\%
\SK@def\citeyear{\SK@\SK@@ref{#1}\citeyear{#1}}\%
\else
\SK@def\HAR@checkdef#1#2{\expandafter\SK@\expandafter\SK@@ref{#1}\SK@HAR@checkdef{#1}{#2}}\%
\expandafter\let\expandafter \SK@HAR@bi\csname\string\harvarditem\endcsname
\expandafter\def\csname\string\harvarditem\endcsname[#1]{\SK@\HAR@bi[#1]{#2}{#3}{#4}\SK@\SK@@label{#4}}\%
\fi
\def\SK@citex[#1]{\SK@\SK@@ref{#2}\SK@@citex[#1]{#2}}
```

This is much simpler than the printing of the label, as we know that we can be in horizontal mode. Note extra group for colour safety.

```
\SK@ref This is much simpler than the printing of the label, as we know that we can be in horizontal mode. Note extra group for colour safety.
\leavevmode\vbox to\z@{
\vss \SK@refcolor \rlap{\vrule\raise .75em\hbox{\underbar{\normalfont\footnotesize\ttfamily#2}}}}}
```

(/package)