Improving “lscape” and “pdflscape”

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Package lscapeenhanced has started as hack module of the KOMA-Script package scrhack years ago to fix an issue when using package lscape with KOMA-Script packages scrlayer or scrlayer-scrpage. This became necessary because package lscape has a somehow strange handling of \textheight resp. \textwidth at landscape pages. This is not only an issue with KOMA-Script but also other packages, e.g., showframe. Package lscapeenhanced solved this issue. This is a really small change and best would be, if the lscape author would at least include this change optionally.

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1 What is the Potential Issue With lscape?

The lscape package defines a landscape environment to set the page contents, but not the header or footer in landscape mode. Inside this environment, \textwidth is set to the value of \textwidth, but \textwidth is not set to the former value of \textheight. This is inconsistent. As far as I know, \textwidth is left unchanged because setting it to \textwidth could interfere with other packages or user commands. But changing \textheight also has this potential, and indeed it breaks, for example, showframe and scrlayer and in consequence also scrlayer-scrpage. Thus it would be best if \textheight too remained unchanged. lscapeenhanced uses the xpatch package (see [Gre20]) to modify the landscape environment’s start macro \landscape appropriately.

*Repository and bug reports: https://github.com/komascript/third-party-enhancements
Incidentally, the \texttt{pdflscape} package also uses \texttt{lscape}, so \texttt{lscapeenhanced} affects the functioning of this package too.

\section*{2 How to use \texttt{lscapeenhanced}}

In the document preamble of your document you just can replace
\begin{verbatim}
\usepackage{lscape}
\end{verbatim}
by
\begin{verbatim}
\usepackage{lscapeenhanced}
\end{verbatim}
to load package \texttt{lscapeenhanced}. This does still also load package \texttt{lscape} but additionally patches one command of \texttt{lscape} to avoid the issues shown in section 1.

If you want you can alternatively also load both packages explicitly, either \texttt{lscape} before \texttt{lscapeenhanced} or—if you want—\texttt{lscapeenhanced} before \texttt{lscape}. This is also useful, if you use a package, that uses \texttt{lscape} itself, i.e., \texttt{pdflscape}.

\texttt{pdflscape (opt.)} In case of \texttt{pdflscape} you can alternatively replace
\begin{verbatim}
\usepackage{pdflscape}
\end{verbatim}
by
\begin{verbatim}
\usepackage[pdflscape]{lscapeenhanced}
\end{verbatim}
in which case \texttt{lscapeenhanced} would load \texttt{pdflscape}.

When using a class that uses \texttt{lscape}, the correct operation can be ensured with
\begin{verbatim}
\AddToHook{package/lscape/after}{\RequirePackage{lscapeenhanced}}
\end{verbatim}
even before \texttt{\documentclass}. This requires at least \LaTeX\ 2020/10/01. For older versions of \LaTeX\ you can use
\begin{verbatim}
\RequirePackage{scrlfile}
\AfterPackage{lscape}{\RequirePackage{lscapeenhanced}}
\end{verbatim}
also before \texttt{\documentclass}. This would require the KOMA-Script package \texttt{scrlfile}.

The user interface of \texttt{lscapeenhanced} is the same as of \texttt{lscape} resp. \texttt{pdflscape}, see [Car20].

The only difference is, that the issue explained in section 1 has been fixed.

\texttt{lscape (opt.)} To deactivate the changes of \texttt{lscapeenhanced} you can use option \texttt{lscape=false}. This option can also be changed using
\begin{verbatim}
\SetKeys{lscapeenhanced}{lscape=false}
\end{verbatim}
or
\begin{verbatim}
\SetKeys{lscapeenhanced}{lscape=true}
\end{verbatim}
after loading the package.
3 Implementation

\texttt{lscapeenhanced} uses the new \LaTeX{} kernel feature of key-value-options introduced in [TLT22]. So we need at least \LaTeX{} 2022-06-01:
\begin{verbatim}
1 \ifnum 0=\ifcsname IfFormatAtLeastTF\endcsname
2 \IfFormatAtLeastTF{2022-06-01}{1}{0}%%
3 \else
4 0%%
5 \fi\relax
6 \PackageError{lscapeenhanced}{LaTeX kernel too old}{%
7 The package needs at least \LaTeX{} 2022-06-01. \MessageBreak
8 This error is fatal. Loading will be aborted.}%
9 }
10 \endinput
11 \fi
12 \ExplSyntaxOn

\texttt{pdflscape (opt.)} If the option is used (without value!) it just changes the macro indicating the package that should also be loaded. Package authors could also define the internal macro \texttt{\@lscapeenhanced@req@packages}.
\begin{verbatim}
13 \providecommand*{\@lscapeenhanced@req@packages}{lscape}
14 \DeclareKeys{%
15 pdflscape .code = {
16 \renewcommand*{\@lscapeenhanced@req@packages}{lscape,pdflscape}
17 },
18 pdflscape .usage = load,
19 pdflscape .value_forbidden:n = true
20 }
\end{verbatim}

\texttt{lscape (opt.)} A switch to allow to activate and deactivate usage of the change.
\begin{verbatim}
21 \newif\if\lscapeenhanced@lscape \lscapeenhanced@lscapefalse
22 \DeclareKeys{%
23 lscape .if = \lscapeenhanced@lscape,\n24 lscape.usage = general,
25 }

Processing the options:
26 \ExplSyntaxOff
27 \ProcessKeyOptions\relax

Now we can request the base package(s):
28 \expandafter\RequirePackage\expandafter{\@lscapeenhanced@req@packages}

As often as possible, we do not redefine macros of \texttt{lscape}, but patch them using \texttt{xpatch}:
29 \RequirePackage{xpatch}
30 \xpatchcmd{\landscape}{\textheight=\vsize}{%
31 \if\lscapeenhanced@lscape
\endverbatim
Here the changed value of `\texttheheight` is needed for initialization of `\@colht`. So we patch it to use the new internal `\@lscapeenhanced@texttheight` instead of `\texttheheight`.

```latex
32 \@lscapeenhanced@texttheight=\vsize
33 \let\@lscapeenhanced@outputpage\@outputpage
34 \def\@outputpage{%\@lscapeenhanced@outputpage\global\@colht\@lscapeenhanced@texttheight}
35 }%
36 }else
37 \texttheheight=\vsize
38 \fi
39 }%}
40 \PackageInfo{lscapeenhanced}{\string\landscape\space patched to make
41 \string\texttheheight\space change optional}%
42 }%
43 \PackageWarning{lscapeenhanced}{Cannot patch \string\landscape!\MessageBreak
44 Maybe you are using a unsupported lscape version}%
45 \@lscapeenhanced@lscapefalse
46 }
47 \newlength{\@lscapeenhanced@texttheight}
```

References


[CT20] David Carlisle and The B\TeX\ Project Team. *lscape – Place selected parts of a document in landscape*. Version 3.02. Modifies the margins and rotates the page contents but not the page number. Useful, for example, with large multipage tables, as it is compatible with longtable and supertabular. May 28, 2020. URL: https://ctan.org/pkg/lscape (visited on 07/19/2023).


[Koh23b] Markus Kohm. *scrlfile – Installation control (not only) for KOMA-Script packages*. Version 3.41. The package provides hooks for the execution of commands before or after loading files, classes or packages independent from the \B\TeX\ kernel version. July 7, 2023. URL: https://ctan.org/pkg/scrlfile (visited on 07/19/2023).
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Change History

v0.1 – 2023/06/01

General: start of KOMA-Script spin-off

v1.0 – 2024/04/16

General: first release as standalone

package