jss: A Document Class for Publications in the Journal of Statistical Software

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1 Introduction

The LaTeX 2_ε document class **jss** is an extension of the standard LaTeX 2_ε **article** class for publications in the Journal of Statistical Software (JSS, `https://www.jstatsoft.org/`). Additionally, the JSS-specific header/footer can be easily switched off so that the document class can easily be used for other publications, e.g., R package vignettes.

The document class provides infrastructure for all four kinds of publications in JSS: regular articles, code snippets, book reviews and software reviews. Each document requires several declarations to be made in the header (before `\begin{document}`) which are described in Section 2 separately for articles/code snippets and book/software reviews along with some general commands which can be used in all documents.

The final version of JSS papers should be prepared using this JSS style file; the submission of the final version needs to include the full sources (`.tex`, `.bib`, and all graphics). A quick check for the most important aspects of the JSS style is given in Section 2.1; authors should make sure that all of them are addressed in the final version. A list of frequently asked questions (FAQ) is available online `https://www.jstatsoft.org/style` that provides additional details and tries to address typical problems.

All documents need to be processed by pdfLaTeX, some useful information on this is provided in Section 3, which also contains some information on using BibTeX. BibTeX together with the style file `jss.bst` produces references and citations in the required format.

The actual code for the batch file (`jss.ins`), the driver (`jss.drv`) and the class (`jss.cls`) are briefly described in Section 4. Note, that usually you do not have to read that section when you want to prepare a submission for JSS.

2 Instructions for authors

To use the JSS styles, you have to include the class file `jss.cls`, the logo `jsslogo.jpg` and the BibTeX style `jss.bst` in your search path. This can either be your local working directory or in your `texmf` or `localtexmf` tree.

The LaTeX documents have to include the `jss.cls` first by

`\documentclass[`*type*`]{jss}`

where *type* can be `article` (which is the default), `codesnippet`, `bookreview` or `softwarereview`. Templates with brief instructions are provided in `article.tex`, `codesnippet.tex`, `bookreview.tex` and `softwarereview.tex` respectively. The corresponding commands used for the header declarations are described in more detail in the following.

By using `jss.cls`, the packages **graphicx**, **xcolor**, **hyperref**, **ae**, **fancyverb** and **natbib** are loaded automatically. Additionally, **lmodern** and **upquote** are loaded if available. Authors may, of course, include further packages if necessary (e.g., **amsmath**, **amsfonts**, **bm**, **tikz**, . . .)

but should not do so excessively. In particular, no packages must be loaded that change the page layout, the font, or font encoding. If the package **thumbpdf** is available, its inclusion is encouraged.

The titles of JSS publications are capitalized, i.e., in title style, but the section headers are not and should be in sentence-style.

Acknowledgments should be included at the end of the paper before the references in a separate section set up via `\section*{Acknowledgments}`.

Hint. If you want to use markup in section headers you will usually have to escape it for the PDF bookmarks by giving the text for the bookmark explicitly without markup, e.g.,

```
\section[Calling C++ from R]{Calling \proglang{C++} from \proglang{R}}
```

Hint. If compilation with pdfLaTeX fails with an error at `\begin{document}` the reason is almost surely that some of the declarations in the header have not been made properly. For example, `\Plainauthor`, `\Plaintitle` or `\Plainkeywords` might be missing or still containing markup.

Hint. If you want to use the JSS style for a non-JSS paper (or a modification of a JSS paper, e.g., in a vignette), you can set the option `nojss` in the `\documentclass` statement to suppress JSS-specific layout.

2.1   Style checklist

A quick check for the most important aspects of the JSS style is given below. Authors should make sure that all of them are addressed in the final version. More details can be found in the remainder of this manual.

- The manuscript can be compiled by pdfLaTeX.

- `\proglang`, `\pkg` and `\code` have been used for highlighting throughout the paper (including titles and references), except where explicitly escaped.

- References are provided in a `.bib` BibTeX database and included in the text by `\cite`, `\citep`, `\citet`, etc.

- Titles and headers are formatted properly:
  - `\title` in title style,
  - `\section` etc. in sentence style,
  - all titles in the BibTeX file in title style.

- Figures, tables and equations are marked with a `\label` and referred to by `\ref`, e.g., "Figure~\ref{...}".

- Software packages are `\cite{}`d properly.

2.2   Articles and code snippets

For JSS articles and code snippets respectively, the following declarations have to be made in the header of the LaTeX sources (before `\begin{document}`). See also the template `article.tex` or `codesnippet.tex` respectively.

`\author` The command `\author` specifies the list of authors. The name of each author should be followed by a linebreak and his affiliation (only the university, in a single line). The authors should be separated by `\And` (instead of `\and`), e.g.,

```
\author{Achim Zeileis\\Universit\"at Innsbruck \And
        Second Author\\Plus Affiliation}
```

If not all authors fit into a single line, `\AND` (instead of `\And`) should be used in front of authors that should go into the next line. If authors have an ORCID it is recommended to include `\usepackage{orcidlink}` in the header and extend the author names in the `\author` command in the following format: `Achim Zeileis~\orcidlink{0000-0003-0918-3766}`.

`\Plainauthor` The list of authors without affiliations. It needs to be comma-separated and must not contain any markup (bold fonts etc.), e.g.,

```
\Plainauthor{Achim Zeileis, Second Author}
```

`\title` The title of the paper. It should be capitalized and may contain further markup (in particular markup such as `\pkg` and `\proglang`), e.g.,

```
\title{A Capitalized Title for a Package \pkg{foo}}
```

`\Plaintitle` The full title without any markup. The default is to use `\title`, therefore it needs to be specified only if it is different from `\title`, e.g.,

```
\Plaintitle{A Capitalized Title for a Package foo}
```

`\Shorttitle` A shorter version of the title to be used for page headings. The default is to use `\title`, therefore it needs to be specified only if it is different from `\title`, e.g.,

```
\Shorttitle{foo: A Capitalized Title}
```

`\Abstract` Enter the abstract for your article here, e.g.,

```
\Abstract{
  The abstract of the article.
}
```

`\Keywords` A comma-separated list of (at least one) keyword(s) which should not be capitalized, e.g., `\Keywords{keywords, comma-separated, not capitalized}`.

`\Plainkeywords` The list of keywords without any markup. The default is to use `\Keywords`, therefore it needs to be specified only if it is different from `\Keywords`.

`\Volume` The JSS volume number in which the article is published, e.g., `\Volume{11}`. Note: This information will be provided upon acceptance or added by the technical editor. Prior to acceptance, do not use this command.

`\Issue` The JSS issue number in which the article is published, e.g., `\Issue{9}`. Note: This information will be provided upon acceptance or added by the technical editor. Prior to acceptance, do not use this command.

`\Month` The month in which the article is published, e.g., `\Month{September}`. Note: This information will be provided upon acceptance or added by the technical editor. Prior to acceptance, do not use this command.

`\Year` The year in which the article is published, e.g., `\Year{2004}`. Note: This information will be provided upon acceptance or added by the technical editor. Prior to acceptance, do not use this command.

`\Submitdate` The date of submission for the article, e.g., `\Submitdate{2004-09-29}`. Note: This information will be provided upon acceptance or added by the technical editor. Prior to acceptance, do not use this command.

`\Acceptdate` The date of acceptance for the article, e.g., `\Acceptdate{2004-09-29}`. Note: This informa-

tion will be provided upon acceptance or added by the technical editor. Prior to acceptance, do not use this command.

\Address The address of (at least) one author should be given in the following format

```
\Address{
  Achim Zeileis\\
  Universit\"at Innsbruck\\
  Department of Statistics and Mathematics\\
  Faculty of Economics and Statistics\\
  6020 Innsbruck, Austria\\
  E-mail: \email{Achim.Zeileis@uibk.ac.at}\\
  URL: \url{https://www.zeileis.org/}
}
```

It is also possible to include your telephone number, by adding it in the format

```
Telephone: +43/512/507-7103
```

before the e-mail address.

Furthermore, if the document is prepared using the Sweave functions in R, something like the following line

```
%% need no \usepackage{Sweave.sty}
```

(with '%%') needs to be included in the header.

2.3   Book and software reviews

For JSS book and software respectively, the following declarations have to be made in the header of the LaTeX sources (before \begin{document}).   See also the template bookreview.tex or softwarereview.tex respectively. Note that some commands might differ between book and software reviews, this is always stated explicitly below.

\Reviewer The command \Reviewer specifies the name of the reviewer followed by a linebreak and his affiliation (only the university, in a single line), e.g.,

```
\Reviewer{Achim Zeileis\\Universit\"at Innsbruck}
```

\Plainreviewer The name of the reviewer without affiliation. It must not contain any markup (bold fonts etc.), e.g.,

```
\Plainauthor{Achim Zeileis}
```

The following five commands are just required for book reviews.

\Booktitle The title of the book. It should be capitalized and may contain further markup (in particular markup such as \pkg and \proglang), e.g.,

```
\Booktitle{Visualizing Categorical Data}
```

\Bookauthor Author(s) of the book, e.g.,

```
\Bookauthor{Michael Friendly}
```

If there are several authors they should be comma-separated, and the last author separated by `and`, e.g., `\Bookauthor{A and B}` or `\Bookauthor{A, B and C}`.

\Pubyear Year of publication, e.g., `\Pubyear{2000}`.

\ISBN ISBN number, e.g., `\ISBN{1-58025-660-0}`.

\Pages Number of pages, both arabic and roman (if available), e.g., `\Pages{456}` or `\Pages{xvi + 145}`.

The following command is just required for software reviews.

\Softwaretitle The title of the software. It should be capitalized and may contain further markup (in particular markup such as `\pkg` and `\proglang`), e.g.,

```
\Softwaretitle{\pkg{Aabel} 1.5.7}
```

The remaining commands are again required for both book and software reviews.

\Publisher Publisher of the book/software, e.g., `\Publisher{SAS Institute Inc.}` or `\Publisher{Gigawiz Ltd. Co.}`.

\Pubaddress Address of the publisher of the book/software, e.g., `\Pubaddress{Carey, NC}`.

\Price Price of the book/software. For books this might simply be `\Price{USD 69.95}` or `\Price{USD 69.95 (P)}`, but could also distinguish between hardcover and paperback versions `\Price{USD 69.95 (P), USD 89.95 (H)}`. Analogously, for a software it could be `\Price{USD 349 (standard), USD 249 (academic)}`.

\URL A URL for the book or software, e.g.,

```
\URL{http://www.math.yorku.ca/SCS/vcd/}
```

If no URL is available, use `\URL{}`.

\Plaintitle The full book or software title without any markup (line breaks, bold fonts etc.). The default is to use `\Booktitle` or `\Softwaretitle` respectively, therefore it needs to be specified only if it is different from `\Booktitle` or `\Softwaretitle`, e.g.,

```
\Plaintitle{Visualizing Categorical Data}
```

\Shorttitle A shorter version of the book or software title to be used for page headings. The default is to use `\Booktitle` or `\Softwaretitle` respectively, therefore it needs to be specified only if it is different from `\Booktitle` or `\Softwaretitle`, e.g.,

```
\Shorttitle{Visualizing Categorical Data}
```

\Volume The JSS volume number in which the review is published, e.g., `\Volume{11}`. Note: This information will be provided upon acceptance or added by the technical editor.

\Issue The JSS issue number in which the review is published, e.g., `\Issue{9}`. Note: This information will be provided upon acceptance or added by the technical editor.

\Month The month in which the review is published, e.g., `\Month{September}`. Note: This information will be provided upon acceptance or added by the technical editor.

\Year The year in which the review is published, e.g., `\Year{2004}`. Note: This information will be provided upon acceptance or added by the technical editor.

\Submitdate The date of publication for the review, e.g., `\Submitdate{2004-09-29}`. Note: This information will be provided upon acceptance or added by the technical editor.

\Address The address of (at least) one author should be given in the following format

```
\Address{
```

```
   Achim Zeileis\\
   Universit\"at Innsbruck\\
   Department of Statistics and Mathematics\\
   Faculty of Economics and Statistics\\
   6020 Innsbruck, Austria\\
   E-mail: \email{Achim.Zeileis@uibk.ac.at}\\
   URL: \url{https://www.zeileis.org/}
 }
```

It is also possible to include your telephone number, by adding it in the format

```
   Telephone: +43/512/507-7103
```

before the e-mail address.

2.4 Further commands

The **jss** package provides several commands for typesetting names related to software (programming languages, packages, code) and mathematical formulae.

Writing about software

\proglang This should be used for typesetting the names of programming languages, e.g., `\proglang{Java}`, `\proglang{C++}` or `\proglang{R}`. This applies also to programmable environments which also have a GUI like `\proglang{SAS}`, `\proglang{Stata}` or `\proglang{S-PLUS}`.

\pkg This should be used for typesetting the names of packages, e.g., `\pkg{CMregr}`, `\pkg{MATCH}` or `\pkg{strucchange}`.

\code This should be used for typesetting code chunks within the text, e.g., `\code{plot(1:10)}`. Currently, this simply uses a typewriter font. Although it escapes most special characters, it might still lead to problems with some special characters. In such cases the code can also be set using `\verb`, e.g., `\verb/print("hello world")/`.

Layout of code

`jss.cls` only provides very simple means of including code which are mostly borrowed from **Sweave**. There are three verbatim environments for code: `Code`, `CodeInput` and `CodeOutput`. Furthermore, there is an environment `CodeChunk` which can be put around sequences of `CodeInput`s and `CodeOutput`s to (hopefully) keep LaTeX from page-breaking in the middle of a code chunk. In short, there are two options: a) if no distinction between input and output is necessary, the code is placed between `\begin{Code}` and `\end{Code}`. b) If input and output should be distinguished, this can be done like in the following example.

```
\begin{CodeChunk}
\begin{CodeInput}
first input first line
first input second line
\end{CodeInput}
\begin{CodeOutput}
output of first input
\end{CodeOutput}
\begin{CodeInput}
second input
\end{CodeInput}
\begin{CodeOutput}
```

```
second output
\end{CodeOutput}
\end{CodeChunk}
```

An example what this could look like, is the following R code. The first three lines are the input, the rest is output.

```
\begin{CodeChunk}
\begin{CodeInput}
R> data(cars)
R> fm <- lm(dist ~ speed, data = log(cars))
R> summary(fm)
\end{CodeInput}
\begin{CodeOutput}
Call:
lm(formula = dist ~ speed, data = log(cars))

Residuals:
     Min      1Q  Median      3Q     Max
-1.00215 -0.24578 -0.02898  0.20717  0.88289

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  -0.7297     0.3758  -1.941   0.0581 .
speed         1.6024     0.1395  11.484 2.26e-15 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.4053 on 48 degrees of freedom
Multiple R-Squared: 0.7331,     Adjusted R-squared: 0.7276
F-statistic: 131.9 on 1 and 48 DF,  p-value: 2.259e-15
\end{CodeOutput}
\end{CodeChunk}
```

If you prepare your paper using **Sweave** (which is recommended if you describe an R package) do *not* include `Sweave.sty` into your document, the necessary commands are already available within `jss.cls`. To prevent **Sweave** from including `Sweave.sty` automatically you need to include a line like

```
%% need no \usepackage{Sweave.sty}
```

(with '%%') into the header of your document.

If this basic infrastructure for typesetting your code is not sufficient, you can also use other LaTeX packages like the **listings** package.

Mathematical formulae

Commonly used operators like E, VAR, COV, and P should be set using the commands `\E`, `\VAR`, `\COV` and `\Prob`. Beyond this, **jss** does not provide (or enforce) a certain mathematical notation. However, using the AMS packages (**amsmath**, **amssymb**, etc.) could be useful.

3 Using pdfLATEX and BIBTEX

Using pdfLATEX

A LATEX document (`foo.tex`, say) using `jss.cls` needs to be compiled using pdfLATEX, typically this will be done using either of the following commands:

```
pdflatex foo.tex
```

```
texi2dvi --pdf foo.tex
```

```
texi2pdf foo.tex
```

If you are not using command line tools but some integrated GUI editor for LATEX documents you will have to press the 'pdfLATEX' button (as opposed to the 'LATEX' button).

All graphics included into the document have to be in a format pdfLATEX can deal with, i.e., PDF for vector graphics or JPG/PNG/etc. for bitmaps/raster graphics. If you cannot produce PDF graphics directly but only PS/EPS, these can be converted using `ps2pdf` or `epstopdf` (usually preferred).

Hint. If you are used to compiling your documents with standard LATEX and then getting automatic reloads of the resulting DVI document in your DVI viewer, which is not possible with PDF documents in many PDF viewers: you might want to look at **xpdf** (Linux) or **gsview** (Windows, see `http://www.cs.wisc.edu/~ghost/gsview/`) which have a reload function.

Hint. If you want to use markup in section headers you will usually have to escape it for the PDF bookmarks by giving the text for the bookmark explicitly without markup, e.g.,

```
\section[Calling C++ from R]{Calling \proglang{C++} from \proglang{R}}
```

Hint. If you know how to produce LATEX documents that can be processed with both LATEX and pdfLATEX, you can do so if you provide an EPS substitute for `jsslogo.jpg` (e.g. an empty or converted `jsslogo.eps`). Note, however, that the final document needs to be processed with pdfLATEX. Neither this manual nor the JSS encourage or support compilation of JSS documents with standard LATEX.

References with BIBTEX

The format for references (e.g., articles, books, software, proceedings) should look like this

Brown RL, Durbin J, Evans JM (1975). "Techniques for Testing the Constancy of Regression Relationships over Time." *Journal of the Royal Statistical Society B*, **37**, 149–163.

Friendly M (2000). *Visualizing Categorical Data.* SAS Insitute, Carey, NC.

R Core Team (2020). *R: A Language and Environment for Statistical Computing.* R Foundation for Statistical Computing, Vienna, Austria. URL `https://www.R-project.org/`.

Plummer M (2003). "**JAGS** – A Program for Analysis of Bayesian Graphical Models Using Gibbs Sampling." In K Hornik, F Leisch, A Zeileis (eds.), "Proceedings of the 3rd International Workshop on Distributed Statistical Computing, Vienna, Austria," ISSN 1609-395X, URL `https://www.R-project.org/conferences/DSC-2003/Proceedings/`.

Important. Note, that also the titles of papers are in title style (as opposed to sentence style), i.e., they are capitalized. The first word after a colon ':' is always capitalized. Furthermore,

commands like `\proglang` and `\pkg` should also be used for the references. The names of journals or proceeding volumes should not be abbreviated.

The easiest way to achieve this is to use BIBTEX together with the style file `jss.bst`. To do so, the references just have to be included in a BIBTEX file, `foo.bib` say, which has to be included at the end of the LaTeX document by `\bibliography{foo}`. Note, that to obtain references in the format above, the `title` field in your bib file, needs to be capitalized (contrary to the folklore, there are BIBTEX styles that rely on this even for `@Article` entries), i.e. the entry `title = {Visualizing Categorical Data}` is correct, while entries like `title = {Visualizing categorical data}` or (even worse) `title = {{Visualizing categorical data}}` are not.

The default in `jss.cls` is to use the **natbib** package with options `authoryear`, `round` and `longnamesfirst`. If you cite any article with six or more authors, the citations with all names should be avoided. This can either be done by declaring `\shortcites{...}` for the particular references or by turning the `longnamesfirst` option off completely. The latter can be done by using the option `shortnames` when loading the `jss.cls` class

```
\documentclass[article,shortnames]{jss}
```

4 The code

4.1 The batch file

First comes the code for creating the batch file `jss.ins` which in turn can be used for producing the package and driver files.

```
 1 ⟨∗install⟩
 2 \begin{filecontents}{\filename.ins}
 3 % Simply TeX or LaTeX this file to extract various files from the source
 4 % file 'jss.dtx'.
 5 \def\batchfile{jss.ins}
 6 \input docstrip.tex
 7 \generateFile{jss.drv}{t}{\from{jss.dtx}{driver}}
 8 \generateFile{jss.cls}{t}{\from{jss.dtx}{class}}
 9 \Msg{********************************************************}
10 \Msg{* For documentation, run LaTeX on jss.dtx or jss.drv. *}
11 \Msg{********************************************************}
12 \end{filecontents}
13 ⟨/install⟩
```

4.2 The driver

Next comes the documentation driver file for LaTeX, i.e., the file that will produce the documentation you are currently reading. It will be extracted from this file by the `docstrip` program. Since it is the first code in the file one can alternatively process this file directly with LaTeX 2ε to obtain the documentation.

```
14 ⟨∗driver⟩
15 \documentclass[a4paper]{ltxdoc}
16 \providecommand{\file}[1]{\texttt{#1}}
17 \providecommand{\pkg}[1]{{\fontseries{m}\fontseries{b}\selectfont #1}}
18 \usepackage{xcolor,hyperref}
19 \oddsidemargin1.2cm
20 \textwidth14.2cm
21 \textheight23.3cm
22 \topmargin-.7cm
23 \setlength{\parskip}{0.7ex plus0.1ex minus0.1ex}
24 \setlength{\parindent}{0em}
25 \begin{document}
26    \OnlyDescription
27    \DocInput{jss.dtx}
28 \end{document}
29 ⟨/driver⟩
```

4.3 The class

Next is the main part, the code for the class file.

It requires LaTeX 2ε

```
30 ⟨∗class⟩
31 \NeedsTeXFormat{LaTeX2e}
32 \ProvidesClass{jss}[\filedate\space\fileversion\space jss class by Achim Zeileis]
33 ⟨/class⟩
```

and is based on the `article` class. But before we load the class we declare and process some options. These reflects wether we want to write an article, code snippet, a book review or software review. The `shortnames` option is for loading `natbib` *without* the option `longnamesfirst`. The `nojss` option suppresses JSS header and footer. The `notitle` option

suppresses the automatic `\maketitle` at the beginning of the document. The `noheadings` option suppresses headings on the pages. The `nofooter` option suppresses the automatic `\makefooter` at the end of the document.

```
34 ⟨∗class⟩
35 %% options
36 \newif\if@article
37 \newif\if@codesnippet
38 \newif\if@bookreview
39 \newif\if@softwarereview
40 \newif\if@review
41 \newif\if@shortnames
42 \newif\if@nojss
43 \newif\if@notitle
44 \newif\if@noheadings
45 \newif\if@nofooter
46
47 \@articletrue
48 \@codesnippetfalse
49 \@bookreviewfalse
50 \@softwarereviewfalse
51 \@reviewfalse
52 \@shortnamesfalse
53 \@nojssfalse
54 \@notitlefalse
55 \@noheadingsfalse
56 \@nofooterfalse
57
58 \DeclareOption{article}{\@articletrue%
59   \@codesnippetfalse \@bookreviewfalse \@softwarereviewfalse}
60 \DeclareOption{codesnippet}{\@articlefalse%
61   \@codesnippettrue \@bookreviewfalse \@softwarereviewfalse}
62 \DeclareOption{bookreview}{\@articlefalse%
63   \@codesnippetfalse \@bookreviewtrue \@softwarereviewfalse}
64 \DeclareOption{softwarereview}{\@articlefalse%
65   \@codesnippetfalse \@bookreviewfalse \@softwarereviewtrue}
66 \DeclareOption{shortnames}{\@shortnamestrue}
67 \DeclareOption{nojss}{\@nojsstrue}
68 \DeclareOption{notitle}{\@notitletrue}
69 \DeclareOption{noheadings}{\@noheadingstrue}
70 \DeclareOption{nofooter}{\@nofootertrue}
71
72 \ProcessOptions
73 \LoadClass[11pt,a4paper,twoside]{article}
74 ⟨/class⟩
```

A few packages are required and the font encoding is specified.

```
75 ⟨∗class⟩
76 %% required packages
77 \RequirePackage{graphicx,xcolor,ae,fancyvrb}
78 \RequirePackage[T1]{fontenc}
79 \IfFileExists{upquote.sty}{\RequirePackage{upquote}}{}
80 \IfFileExists{lmodern.sty}{\RequirePackage{lmodern}}{}
81 ⟨/class⟩
```

In addition, `hyperref` is included later on. The bibliography is generated using `natbib` and the BIBTEX style `jss.bst`.

```
82 ⟨∗class⟩
83 %% bibliography
84 \if@shortnames
```

```
85    \usepackage[authoryear,round]{natbib}
86 \else
87    \usepackage[authoryear,round,longnamesfirst]{natbib}
88 \fi
89 \bibpunct{(}{)}{;}{a}{}{,}
90 \bibliographystyle{jss}
91 ⟨/class⟩
```

The page layout is set to a wide style with smaller margins.

```
92  ⟨*class⟩
93  %% page layout
94  \topmargin 0pt
95  \textheight 46\baselineskip
96  \advance\textheight by \topskip
97  \oddsidemargin 0.1in
98  \evensidemargin 0.15in
99  \marginparwidth 1in
100 \oddsidemargin 0.125in
101 \evensidemargin 0.125in
102 \marginparwidth 0.75in
103 \textwidth 6.125in
104 ⟨/class⟩
```

Paragraphs are not indented, instead \parskip is increased.

```
105 ⟨*class⟩
106 %% paragraphs
107 \setlength{\parskip}{0.7ex plus0.1ex minus0.1ex}
108 \setlength{\parindent}{0em}
109 ⟨/class⟩
```

To process the meta information we need some new commands: for all publications,

```
110 ⟨*class⟩
111 %% for all publications
112 \newcommand{\Address}[1]{\def\@Address{#1}}
113 \newcommand{\Plaintitle}[1]{\def\@Plaintitle{#1}}
114 \newcommand{\Shorttitle}[1]{\def\@Shorttitle{#1}}
115 \newcommand{\Plainauthor}[1]{\def\@Plainauthor{#1}}
116 \newcommand{\Volume}[1]{\def\@Volume{#1}}
117 \newcommand{\Year}[1]{\def\@Year{#1}}
118 \newcommand{\Month}[1]{\def\@Month{#1}}
119 \newcommand{\Issue}[1]{\def\@Issue{#1}}
120 \newcommand{\Submitdate}[1]{\def\@Submitdate{#1}}
121 ⟨/class⟩
```

for articles and code snippets,

```
122 ⟨*class⟩
123 %% for articles and code snippets
124 \newcommand{\Acceptdate}[1]{\def\@Acceptdate{#1}}
125 \newcommand{\Abstract}[1]{\def\@Abstract{#1}}
126 \newcommand{\Keywords}[1]{\def\@Keywords{#1}}
127 \newcommand{\Plainkeywords}[1]{\def\@Plainkeywords{#1}}
128 ⟨/class⟩
```

for book and software reviews,

```
129 ⟨*class⟩
130 %% for book and software reviews
131 \newcommand{\Reviewer}[1]{\def\@Reviewer{#1}}
132 \newcommand{\Booktitle}[1]{\def\@Booktitle{#1}}
133 \newcommand{\Bookauthor}[1]{\def\@Bookauthor{#1}}
```

```
134 \newcommand{\Publisher}[1]{\def\@Publisher{#1}}
135 \newcommand{\Pubaddress}[1]{\def\@Pubaddress{#1}}
136 \newcommand{\Pubyear}[1]{\def\@Pubyear{#1}}
137 \newcommand{\ISBN}[1]{\def\@ISBN{#1}}
138 \newcommand{\Pages}[1]{\def\@Pages{#1}}
139 \newcommand{\Price}[1]{\def\@Price{#1}}
140 \newcommand{\Plainreviewer}[1]{\def\@Plainreviewer{#1}}
141 \newcommand{\Softwaretitle}[1]{\def\@Softwaretitle{#1}}
142 \newcommand{\URL}[1]{\def\@URL{#1}}
143 \newcommand{\DOI}[1]{\def\@DOI{#1}}
144 ⟨/class⟩
```

and for internal use only.

```
145 ⟨*class⟩
146 %% for internal use
147 \newcommand{\Seriesname}[1]{\def\@Seriesname{#1}}
148 \newcommand{\Hypersubject}[1]{\def\@Hypersubject{#1}}
149 \newcommand{\Hyperauthor}[1]{\def\@Hyperauthor{#1}}
150 \newcommand{\Footername}[1]{\def\@Footername{#1}}
151 \newcommand{\Firstdate}[1]{\def\@Firstdate{#1}}
152 \newcommand{\Seconddate}[1]{\def\@Seconddate{#1}}
153 \newcommand{\Reviewauthor}[1]{\def\@Reviewauthor{#1}}
154 ⟨/class⟩
```

Some defaults for theses commands are specified, which are (hopefully) a useful guidance when using the jss.cls.

```
155 ⟨*class⟩
156 %% defaults
157 \author{Firstname Lastname\\Affiliation}
158 \title{Title}
159 \Abstract{---!!!---an abstract is required---!!!---}
160 \Plainauthor{\@author}
161 \Volume{VV}
162 \Year{YYYY}
163 \Month{MMMMMM}
164 \Issue{II}
165 \Submitdate{yyyy-mm-dd}
166 \Acceptdate{yyyy-mm-dd}
167 \Address{
168   Firstname Lastname\\
169   Affiliation\\
170   Address, Country\\
171   E-mail: \email{name@address}\\
172   URL: \url{https://link/to/webpage/}
173 }
174
175 \Reviewer{Firstname Lastname\\Affiliation}
176 \Plainreviewer{Firstname Lastname}
177 \Booktitle{Book Title}
178 \Bookauthor{Book Author}
179 \Publisher{Publisher}
180 \Pubaddress{Publisher's Address}
181 \Pubyear{YYY}
182 \ISBN{x-xxxxx-xxx-x}
183 \Pages{xv + 123}
184 \Price{USD 69.95 (P)}
185 \URL{https://link/to/webpage/}
186 \DOI{10.18637/jss.v000.i00}
187 ⟨/class⟩
```

Conditional on the type of document several other defaults and some meta information is stored.

```
188 ⟨*class⟩
189 \if@article
190   \Seriesname{Issue}
191   \Hypersubject{Journal of Statistical Software}
192   \Plaintitle{\@title}
193   \Shorttitle{\@title}
194   \Plainkeywords{\@Keywords}
195 \fi
196
197 \if@codesnippet
198   \Seriesname{Code Snippet}
199   \Hypersubject{Journal of Statistical Software -- Code Snippets}
200   \Plaintitle{\@title}
201   \Shorttitle{\@title}
202   \Plainkeywords{\@Keywords}
203 \fi
204
205 \if@bookreview
206   \Seriesname{Book Review}
207   \Hypersubject{Journal of Statistical Software -- Book Reviews}
208   \Plaintitle{\@Booktitle}
209   \Shorttitle{\@Booktitle}
210   \Reviewauthor{\@Bookauthor\\
211               \@Publisher, \@Pubaddress, \@Pubyear.\\
212               ISBN~\@ISBN. \@Pages~pp. \@Price.\\
213               \url{\@URL}}
214   \Plainkeywords{}
215   \@reviewtrue
216 \fi
217
218 \if@softwarereview
219   \Seriesname{Software Review}
220   \Hypersubject{Journal of Statistical Software -- Software Reviews}
221   \Plaintitle{\@Softwaretitle}
222   \Shorttitle{\@Softwaretitle}
223   \Booktitle{\@Softwaretitle}
224   \Reviewauthor{\@Publisher, \@Pubaddress. \@Price.\\
225               \url{\@URL}}
226   \Plainkeywords{}
227   \@reviewtrue
228 \fi
229
230 \if@review
231   \Hyperauthor{\@Plainreviewer}
232   \Keywords{}
233   \Footername{Reviewer}
234   \Firstdate{\textit{Published:} \@Submitdate}
235   \Seconddate{}
236 \else
237   \Hyperauthor{\@Plainauthor}
238   \Keywords{---!!!---at least one keyword is required---!!!---}
239   \Footername{Affiliation}
240   \Firstdate{\textit{Submitted:} \@Submitdate}
241   \Seconddate{\textit{Accepted:} \@Acceptdate}
242 \fi
243 ⟨/class⟩
```

For typesetting of code some basic infrastructure along the lines of Sweave is provided. First,

the Sweave commands are provided explicitly,

```
244 ⟨∗class⟩
245 %% Sweave(-like)
246 \DefineVerbatimEnvironment{Sinput}{Verbatim}{fontshape=sl}
247 \DefineVerbatimEnvironment{Soutput}{Verbatim}{}
248 \DefineVerbatimEnvironment{Scode}{Verbatim}{fontshape=sl}
249 \newenvironment{Schunk}{}{}
250 ⟨/class⟩
```

and analogous commands with more neutral names for general pieces of code.

```
251 ⟨∗class⟩
252 \DefineVerbatimEnvironment{Code}{Verbatim}{}
253 \DefineVerbatimEnvironment{CodeInput}{Verbatim}{fontshape=sl}
254 \DefineVerbatimEnvironment{CodeOutput}{Verbatim}{}
255 \newenvironment{CodeChunk}{}{}
256 \setkeys{Gin}{width=0.8\textwidth}
257 ⟨/class⟩
```

The header and footer of JSS publications displays the logo, the publication information and some further links. Here, we define the footer first (because it must be included before `hyperref` in TeXlive). It contains the somewhat extended publication information (from the header), preceded by the address of the author/reviewer.

```
258 ⟨∗class⟩
259 %% footer
260 \newlength{\footerskip}
261 \setlength{\footerskip}{2.5\baselineskip plus 2ex minus 0.5ex}
262
263 \newcommand{\makefooter}{%
264   \vspace{\footerskip}
265
266   \if@nojss
267     \begin{samepage}
268     \textbf{\large \@Footername: \nopagebreak}\\[.3\baselineskip] \nopagebreak
269     \@Address \nopagebreak
270     \end{samepage}
271   \else
272     \begin{samepage}
273     \textbf{\large \@Footername: \nopagebreak}\\[.3\baselineskip] \nopagebreak
274     \@Address \nopagebreak
275     \vfill
276     \hrule \nopagebreak
277     \vspace{.1\baselineskip}
278     {\fontfamily{pzc} \fontsize{13}{15} \selectfont Journal of Statistical Software}
279     \hfill
280     \url{https://www.jstatsoft.org/}\\ \nopagebreak
281     published by the Foundation for Open Access Statistics
282     \hfill
283     \url{https://www.foastat.org/}\\[.3\baselineskip] \nopagebreak
284     {\@Month{} \@Year, Volume~\@Volume, \@Seriesname~\@Issue}
285     \hfill
286     \@Firstdate\\ \nopagebreak
287     {\href{https://doi.org/\@DOI}{\tt doi:\@DOI}}
288     \hfill
289     \@Seconddate  \nopagebreak
290     \vspace{.3\baselineskip}
291     \hrule
292     \end{samepage}
293   \fi
294 }
```

295 ⟨/class⟩

We include the footer at the end of the document (for title see below).

296 ⟨∗class⟩
297 \if@nofooter
298   %% \AtEndDocument{\makefooter}
299 \else
300   \AtEndDocument{\makefooter}
301 \fi
302 ⟨/class⟩

After defining this, we can require the `hyperref` package.

303 ⟨∗class⟩
304 %% required packages
305 \RequirePackage{hyperref}
306 ⟨/class⟩

and proceed to define the header.

The header for all JSS publications has the logo `jsslogo.jpg` along with the publication information.

307 ⟨∗class⟩
308 %% new \maketitle
309 \def\@myoddhead{
310   {\color{white} JSS}\\[-1.42cm]
311   \hspace{-2em} \includegraphics[height=23mm,keepaspectratio]{jsslogo} \hfill
312   \parbox[b][23mm]{118mm}{\hrule height 3pt
313   \center{
314   {\fontfamily{pzc} \fontsize{28}{32} \selectfont Journal of Statistical Software}
315   \vfill
316   {\it \small \@Month{} \@Year, Volume~\@Volume, \@Seriesname~\@Issue.%
317   \hfill \href{https://doi.org/\@DOI}{doi:\,\@DOI}}}\\[0.1cm]
318   \hrule height 3pt}}
319 ⟨/class⟩

This header is then used in the re-defined `\maketitle`:

320 ⟨∗class⟩
321 \if@review
322   \renewcommand{\maketitle}{
323   \if@nojss
324   %% \@oddhead{\@myoddhead}\\[3\baselineskip]
325   \else
326   \@oddhead{\@myoddhead}\\[3\baselineskip]
327   \fi
328   {\large
329   \noindent
330   Reviewer: \@Reviewer
331   \vspace{\baselineskip}
332   \hrule
333   \vspace{\baselineskip}
334   \textbf{\@Booktitle}
335   \begin{quotation} \noindent
336   \@Reviewauthor
337   \end{quotation}
338   \vspace{0.7\baselineskip}
339   \hrule
340   \vspace{1.3\baselineskip}
341   }
342
343   \thispagestyle{empty}

```
344  \if@nojss
345    \markboth{\centerline{\@Shorttitle}}{\centerline{\@Hyperauthor}}
346  \else
347    \markboth{\centerline{\@Shorttitle}}{\centerline{\@Hypersubject}}
348  \fi
349  \pagestyle{myheadings}
350  }
351 \else
352  \def\maketitle{
353  \if@nojss
354    %% \@oddhead{\@myoddhead} \par
355  \else
356    \@oddhead{\@myoddhead} \par
357  \fi
358   \begingroup
359    \def\thefootnote{\fnsymbol{footnote}}
360    \def\@makefnmark{\hbox to 0pt{$^{\@thefnmark}$\hss}}
361    \long\def\@makefntext##1{\parindent 1em\noindent
362                          \hbox to1.8em{\hss $\m@th ^{\@thefnmark}$}##1}
363    \@maketitle \@thanks
364   \endgroup
365   \setcounter{footnote}{0}
366
367   \if@noheadings
368    %% \markboth{\centerline{\@Shorttitle}}{\centerline{\@Hypersubject}}
369    \else
370    \thispagestyle{empty}
371     \if@nojss
372       \markboth{\centerline{\@Shorttitle}}{\centerline{\@Hyperauthor}}
373     \else
374       \markboth{\centerline{\@Shorttitle}}{\centerline{\@Hypersubject}}
375     \fi
376    \pagestyle{myheadings}
377   \fi
378
379  \let\maketitle\relax \let\@maketitle\relax
380  \gdef\@thanks{}\gdef\@author{}\gdef\@title{}\let\thanks\relax
381  }
382
383  \def\@maketitle{\vbox{\hsize\textwidth \linewidth\hsize
384  \if@nojss
385    %% \vskip 1in
386  \else
387    \vskip 1in
388  \fi
389   {\centering
390   {\LARGE\bf \@title\par}
391   \vskip 0.2in plus 1fil minus 0.1in
392   {
393      \def\and{\unskip\enspace{\rm and}\enspace}%
394      \def\And{\end{tabular}\hss \egroup \hskip 1in plus 2fil
395        \hbox to 0pt\bgroup\hss \begin{tabular}[t]{c}\large\bf\rule{\z@}{24pt}\ignorespaces}%
396      \def\AND{\end{tabular}\hss\egroup \hfil\hfil\egroup
397        \vskip 0.1in plus 1fil minus 0.05in
398        \hbox to \linewidth\bgroup\rule{\z@}{10pt} \hfil\hfil
399        \hbox to 0pt\bgroup\hss \begin{tabular}[t]{c}\large\bf\rule{\z@}{24pt}\ignorespaces}
400      \hbox to \linewidth\bgroup\rule{\z@}{10pt} \hfil\hfil
401      \hbox to 0pt\bgroup\hss \begin{tabular}[t]{c}\large\bf\rule{\z@}{24pt}\@author
402      \end{tabular}\hss\egroup
403   \hfil\hfil\egroup}
```

```
404    \vskip 0.3in minus 0.1in
405    \hrule
406    \begin{abstract}
407    \@Abstract
408    \end{abstract}}
409    \textit{Keywords}:~\@Keywords.
410    \vskip 0.1in minus 0.05in
411    \hrule
412    \vskip 0.2in minus 0.1in
413  }}
414 \fi
415 ⟨/class⟩
```

The appearance of sections, subsections and subsubsections is controlled by

```
416 ⟨∗class⟩
417 %% sections, subsections, and subsubsections
418 \newlength{\preXLskip}
419 \newlength{\preLskip}
420 \newlength{\preMskip}
421 \newlength{\preSskip}
422 \newlength{\postMskip}
423 \newlength{\postSskip}
424 \setlength{\preXLskip}{1.8\baselineskip plus 0.5ex minus 0ex}
425 \setlength{\preLskip}{1.5\baselineskip plus 0.3ex minus 0ex}
426 \setlength{\preMskip}{1\baselineskip plus 0.2ex minus 0ex}
427 \setlength{\preSskip}{.8\baselineskip plus 0.2ex minus 0ex}
428 \setlength{\postMskip}{.5\baselineskip plus 0ex minus 0.1ex}
429 \setlength{\postSskip}{.3\baselineskip plus 0ex minus 0.1ex}
430
431
432 \newcommand{\jsssec}[2][default]{\vskip \preXLskip%
433   \pdfbookmark[1]{#1}{Section.\thesection.#1}%
434   \refstepcounter{section}%
435   \centerline{\textbf{\Large \thesection. #2}} \nopagebreak
436   \vskip \postMskip \nopagebreak}
437 \newcommand{\jsssecnn}[1]{\vskip \preXLskip%
438   \centerline{\textbf{\Large #1}} \nopagebreak
439   \vskip \postMskip \nopagebreak}
440
441 \newcommand{\jsssubsec}[2][default]{\vskip \preMskip%
442   \pdfbookmark[2]{#1}{Subsection.\thesubsection.#1}%
443   \refstepcounter{subsection}%
444   \textbf{\large \thesubsection. #2} \nopagebreak
445   \vskip \postSskip \nopagebreak}
446 \newcommand{\jsssubsecnn}[1]{\vskip \preMskip%
447   \textbf{\large #1} \nopagebreak
448   \vskip \postSskip \nopagebreak}
449
450 \newcommand{\jsssubsubsec}[2][default]{\vskip \preSskip%
451   \pdfbookmark[3]{#1}{Subsubsection.\thesubsubsection.#1}%
452   \refstepcounter{subsubsection}%
453   {\large \textit{#2}} \nopagebreak
454   \vskip \postSskip \nopagebreak}
455 \newcommand{\jsssubsubsecnn}[1]{\vskip \preSskip%
456   {\textit{\large #1}} \nopagebreak
457   \vskip \postSskip \nopagebreak}
458
459 \newcommand{\jsssimplesec}[2][default]{\vskip \preLskip%
460 %%  \pdfbookmark[1]{#1}{Section.\thesection.#1}%
461   \refstepcounter{section}%
```

```
462    \textbf{\large #1} \nopagebreak
463    \vskip \postSskip \nopagebreak}
464 \newcommand{\jsssimplesecnn}[1]{\vskip \preLskip%
465    \textbf{\large #1} \nopagebreak
466    \vskip \postSskip \nopagebreak}
467
468 \if@review
469    \renewcommand{\section}{\secdef \jsssimplesec \jsssimplesecnn}
470    \renewcommand{\subsection}{\secdef \jsssimplesec \jsssimplesecnn}
471    \renewcommand{\subsubsection}{\secdef \jsssimplesec \jsssimplesecnn}
472 \else
473    \renewcommand{\section}{\secdef \jsssec \jsssecnn}
474    \renewcommand{\subsection}{\secdef \jsssubsec \jsssubsecnn}
475    \renewcommand{\subsubsection}{\secdef \jsssubsubsec \jsssubsubsecnn}
476 \fi
477 ⟨/class⟩
```

The hypersetup uses some modified colors

```
478 ⟨*class⟩
479 %% colors
480 \AtBeginDocument{%
481 \definecolor{Red}{rgb}{0.5,0,0}
482 \definecolor{Blue}{rgb}{0,0,0.5}
483 }
484 ⟨/class⟩
```

and is then defined by

```
485 ⟨*class⟩
486 \if@review
487    \hypersetup{%
488       hyperindex = {true},
489       colorlinks = {true},
490       linktocpage = {true},
491       plainpages = {false},
492       linkcolor = {Blue},
493       citecolor = {Blue},
494       urlcolor = {Red},
495       pdfstartview = {Fit},
496       pdfpagemode = {None},
497       pdfview = {XYZ null null null}
498    }
499 \else
500    \hypersetup{%
501       hyperindex = {true},
502       colorlinks = {true},
503       linktocpage = {true},
504       plainpages = {false},
505       linkcolor = {Blue},
506       citecolor = {Blue},
507       urlcolor = {Red},
508       pdfstartview = {Fit},
509       pdfpagemode = {UseOutlines},
510       pdfview = {XYZ null null null}
511    }
512 \fi
513 ⟨/class⟩
```

The information for the hyper summary requires some information which has not been processed before the beginning of the document. Therefore, we need a second \hypersetup.

```
514 ⟨*class⟩
```

```
515 \if@nojss
516   \AtBeginDocument{
517     \hypersetup{%
518       pdfauthor = {\@Hyperauthor},
519       pdftitle = {\@Plaintitle},
520       pdfkeywords = {\@Plainkeywords}
521     }
522   }
523 \else
524   \AtBeginDocument{
525     \hypersetup{%
526       pdfauthor = {\@Hyperauthor},
527       pdftitle = {\@Plaintitle},
528       pdfsubject = {\@Hypersubject},
529       pdfkeywords = {\@Plainkeywords}
530     }
531   }
532 \fi
533 ⟨/class⟩
```

We put the header at the beginning of the document, using either the classic macro or the new hook macro. See also above for the footer.

```
534 ⟨*class⟩
535 \if@notitle
536   %% \AtBeginDocument{\maketitle}
537 \else
538   \@ifundefined{AddToHook}{\AtBeginDocument{\maketitle}}{\AddToHook{begindocument}[maketitle]{\maketit
539 \fi
540 ⟨/class⟩
```

Finally, some additional commands are provided for writing about software (code, programming languages, packages),

```
541 ⟨*class⟩
542 %% commands
543 \newcommand\code{\bgroup\@makeother\_\@makeother\~\@makeother\$\@codex}
544 \def\@codex#1{{\normalfont\ttfamily\hyphenchar\font=-1 #1}\egroup}
545 %%\let\code=\texttt
546 \let\proglang=\textsf
547 \newcommand{\pkg}[1]{{\fontseries{m}\fontseries{b}\selectfont #1}}
548 ⟨/class⟩
```

for specifying e-mail addresses,

```
549 ⟨*class⟩
550 \newcommand{\email}[1]{\href{mailto:#1}{\normalfont\texttt{#1}}}
551 ⟨/class⟩
```

digital object identifiers (DOIs),

```
552 ⟨*class⟩
553 \ifx\csname urlstyle\endcsname\relax
554   \newcommand\@doi[1]{doi:\discretionary{}{}{}#1}\else
555   \newcommand\@doi{doi:\discretionary{}{}{}\begingroup
556 \urlstyle{tt}\Url}\fi
557 \newcommand{\doi}[1]{\href{https://doi.org/#1}{\normalfont\texttt{\@doi{#1}}}}
558 ⟨/class⟩
```

and for mathematical notation.

```
559 ⟨*class⟩
560 \newcommand{\E}{\mathsf{E}}
561 \newcommand{\VAR}{\mathsf{VAR}}
```

```
562 \newcommand{\COV}{\mathsf{COV}}
563 \newcommand{\Prob}{\mathsf{P}}
564 ⟨/class⟩
```