The SVJour document class users guide
Version 1.1

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1 Introduction

This documentation describes the SVJour LaTeX 2ε document class. It is not intended to be a general introduction to TeX or LaTeX. For this we refer to [2] and [3].

SVJour was derived from the LaTeX 2ε `article.cls`, based on TeX version 3.141 and LaTeX 2ε. Hence text, formulas, figures and tables are typed using the standard LaTeX 2ε commands. The standard sectioning commands are also used.

The main differences to the standard article class are the presence of additional high-level structuring commands for the article header, new environments for theorem-like structures, and some other useful commands.

Please always give a `\label` where possible and use `\ref` for cross-referencing. Such cross-references will be converted to hyper-links in the elctronic version. The `\cite` and `\bibitem` mechanism for bibliographic references is also obligatory.

1.1 Overview

The documentation consists of this document—which describes the whole class (i.e. the differences to the `article.cls`)—an extra and fairly small manual, explaining the conventions to apply this commands to the specific journal, and a ready to use template to allow you to start writing immediately.

1.2 Using PostScript fonts

The journals of Springer Verlag are typeset using the PostScript[1] Times fonts for the main text. As the use of PostScript fonts results in diffent line and page breaks than when using Computer Modern fonts, we encourage you to use our document class together with the `psnfss` package `times`. This package does all necessary font replacements to show you the page make-up as it will be printed. Ask your local TeXpert for details. PostScript previewing is possible on most systems. On some installations, however, on-screen previewing may be possible only with CM fonts.

If, for technical reasons, you are not able to use the PS fonts, it is also possible to use our document class together with the ordinary Computer Modern fonts. Note, however, that in this case line and page breaks will change when we reTeX your file with PS fonts, making it necessary for you to check them again once you receive the proofs from the printer.

2 Initializing the class

To use the document class, enter

[1] PostScript is a trademark of Adobe.

```
\documentclass [⟨journal, other options⟩] {svjour} [⟨release-date⟩]
```

at the beginning of your article. The first option *journal* is required and should be set to the journal for which you are planning to submit a contribution. Other options, valid for every journal, are

draft	to make overfull boxes visible,
final	the opposite, and
referee	required to produce the two hardcopies for the referees with a special layout.

There are four additional options that control the automatic numbering of figures, tables, equations, and theorem-like environments (see Section 5):

numbook	"numbering like the standard book class"—prefixes all the numbers mentioned above with the section number,
envcountsect	the same for theorem like environments only,
envcountsame	uses one counter for all theorem-like environments,
envcountreset	resets the theorem counter(s) every new section.

There may be additional options for a specific journal—please refer to the extra documentation or to the template file.

As an example, we show how to begin a document for the journal *Numerische Mathematik*, produced in draft mode:

```
\documentclass[nummat,draft]{svjour}
```

3 The article header

In this section we describe the usage of the high-level structuring commands for the article header. Header in this context means everything that comes before the abstract.

3.1 The title

The commands for the title and subtitle of your article are

```
\title {⟨your title⟩}
\subtitle {⟨your subtitle⟩}
```

If needed in the specific journal, you can also insert a headnote like "Letter to the Editor" with

```
\headnote {⟨headnote text⟩}
```

You can also dedicate your article to somebody by specifying

```
\dedication{⟨dedication⟩}
```

3.2 Authors

Informations on the authors are provided with

```
\author {⟨author names⟩}
```

If there is more than one author, the names should be separated by `\and`.

If the authors have different affiliations, each name must be followed by

```
\inst {⟨number⟩}
```

Numbers referring to different addresses should be attached to each author, pointing to the corresponding institute.

To make this clear, we provide an example:

```
\author{John A. Smith\inst{1}\and John B. Doe\inst{2}}
```

3.3 Address data

Address information is marked with

```
\institute {⟨address information⟩}
```

If there is more than one address, the entries are numbered automatically if you use `\and` to separate them. Please make sure that the numbers match those placed next to the authors' names. In addition, you can use

```
\email {⟨email address⟩}
```

to provide your email address within `\institute`.

To continue the example above, we could say

```
\institute{Smith University, \email{smith@smith.edu}
  \and Doe Institute}
```

3.4 Footnotes to the title block

If footnotes to the title, subtitle, author's names or institute addresses are needed, please code them with

`\thanks {⟨text of footnote⟩}`

immediately after the word where the footnote indicator should be placed. These footnotes are marked by asterisks. If you need more than one consecutive footnote, use

`\fnmsep`

between them to typeset the comma separating the asterisks.

To provide an address for offprint requests and the name of the corresponding author, you can use

```
\offprints {⟨name⟩}
\mail {⟨correspondence author⟩}
```

The present address of an author can be typeset with an ordinary `\thanks` command.

3.5 Changing the running heads

Normally the running heads—if present in the specific journal—are produced automatically by the `\maketitle` command using the contents of `\title` and `\author`. If the result is too long for the page header (running head) the class will produce an error message and you will be asked to supply a shorter version. This is done using the syntax

```
\titlerunning{⟨text⟩}
\authorrunning{⟨first author et al.⟩}
```

These commands must be entered before `\maketitle`.

3.6 Typesetting the header

Having entered the commands described in this section, please format the heading with the standard `\maketitle` command. If you leave it out, the work done so far will produce *no* text.

4 Abstract and keywords

The environment for the abstract is the same as in the standard article class. To insert key words, you should use

`\keywords {⟨keywords⟩}`

at the end of the abstract environment. The individual key words should be separated by `␣--␣`.

5 Theorem-like structures

5.1 Predefined environments

To typeset environments such as lemmas, theorems, definitions or examples, we have predefined the following environments:

> case, claim, conjecture, corollary, definition, example, exercise, lemma, note, problem, property, proposition, question, solution, theorem, proof and remark.

The syntax is exactly the same as described in [3, Sect. 3.4.3]:

```
\begin{⟨environment⟩}[⟨name⟩]
...
\end{⟨environment⟩}
```

where the optional *name* is often used for the common name of the theorem:

```
\begin{theorem}[Church, Rosser]
...
\end{theorem}
```

Sometimes the automatic braces around the optional argument are unwanted (e.g. when it consists only of a reference made with `\cite`). Then you can wrap the whole theorem-like structure in a `theopargself` environment. It suppresses the braces and gives you complete control over the optional argument, e.g.:

```
\begin{theopargself}
   \begin{theorem}[\cite{Church,Rosser}]
   ...
   \end{theorem}
\end{theopargself}
```

5.2 Defining new structures

For cases where you do not find an appropriate predefined theorem-like structure above, we provide a mechanism to define your own environment. The commands needed here are

```
\spnewtheorem{⟨name⟩}{⟨label text⟩}[⟨numbered within⟩]{⟨label font⟩}{⟨body font⟩}
\spnewtheorem{⟨name⟩}[⟨numbered like⟩]{⟨label text⟩}{⟨label font⟩}{⟨body font⟩}
```

There is also a starred version, without optional arguments, which provides a theorem environment without numbers. Here *name* is the name of the environment, *label text* is the text to be typeset as heading, and the *label font* and *body font* are the font for the label text and the theorem body.

If you use the *numbered within* argument, the new structure will be numbered within the specified sectional unit—if you specify *numbered like*, it shares its numbering sequence with the referenced structure.

For instance, the predefined environments *theorem* and *proof* are defined as

```
\spnewtheorem{theorem}{Theorem}{\bf}{\it}
\spnewtheorem*{proof}{Theorem}{\it}{\rm}
```

whereas one could define a theorem-like structure *algorithm*, numbered within the current section as

```
\spnewtheorem{algorithm}{Algorithm}[section]{\bf}{\rm}
```

It is also possible to use the *theorem* package shipped with LaTeX 2_ε to define new theorem environments (see [1] for a complete description). But note that you should not change the predefined structures.

6 Additional commands

We provide some additional useful commands which you can use in your manuscript. The first is the *acknowledgement* environment

```
\begin{acknowledgement}
...
\end{acknowledgement}
```

which is usually used as the last paragraph in the last section.

The next is an enhancement of the standard `\caption` command used inside of *figure* environments to produce the legend. The added command

```
\sidecaption
```

can be used to produce a figure legend beside the figure. To activate this feature you have to enter it as the very first command inside the *figure* environment

```
\begin{figure}\sidecaption
  \resizebox{0.3\hsize}{!}{\includegraphics*{figure.eps}}
  \caption{A figure}
\end{figure}
```

If there is not enough room for the legend the normal `\caption` command will be used. Also note that this works only for captions that come *after* the included images.

We also have enhanced the *description* environment by an optional parameter, which lets you specify the largest item label to appear within the list. The syntax now is

```
\begin{description}[⟨largelabel⟩]
...
\end{description}
```

the texts of all items are indented by the width of *largelabel* and the item labels are typeset flush left within this space. Note: The optional parameter will work only two levels deep.

The often missed command

```
\qed
```

yields the known □ symbol with an appropriate space before to close a proof, and the last two commands

```
\vec{⟨symbol⟩}
\tens{⟨symbol⟩}
```

mark vectors (e.g. $\boldsymbol{S}$, or $\mathbf{S}$) and tensors (e.g. $\mathsf{\mathbf{S}}$) respectively.

References

[1] Michel Goossens, Frank Mittelbach and Alexander Samarin. *The LaTeX Companion*. Addison-Wesley, Reading, Massachusetts, 1994.

[2] Donald E. Knuth. *The TeXbook*. Addison-Wesley, Reading, Massachusetts, 1986. Revised to cover TeX3, 1991.

[3] Leslie Lamport. *LaTeX: A Document Preparation System*. Addison-Wesley, Reading, Massachusetts, second edition, 1994.