lni – Official class for submissions to the "Lecture Notes in Informatics"*

Martin Sievers†

Released 2017/04/07

Abstract

After several years the `lni` bundle has been updated. The resulting new version fixes some long-standing bugs, solves problems and supports modern packages like biblatex and microtype. It has been put into one DTX file to make maintaining and distributing via CTAN a bit easier.

1 Introduction

LaTeX templates are often long-lasting. Even if they use meanwhile deprecated packages they are often passed from one generation of authors to the next.

The *Lecture Notes in Informatics* thankfully realized, that their bundle should be technologically modernized while the general layout remains the same.

Based on the existing class and bib files I set-up a DTX file and started reworking the source code. Editors and authors suggested different additions and changes, which I tried to incoporate without changing the existing mechanisms too much.

This is the first public release. I would to thank especially Oliver Kopp and Stefan Strecker and his team for their suggestions and tests.

2 Installation

The `lni` bundle is currently distributed via GitHub, the GI website and (preferably) CTAN. The later is the basis for all updates of the two main TeX distributions MiKTeX and TeX Live. Thus the easiest way to get all files needed to typeset an article for the *Lecture Notes in Informatics* is to use the package manager of your distribution.

For a manual installation you should copy all files (cls, tex, pdf and bst) to your local TEXMF tree and update your file name database.

*This file describes version v1.0, last revised 2017/04/07.

†Email: martin.sievers@schoenerpublizieren.de

3 Usage

To use the predefined layout for a (German) submission to the *Lecture Notes in Informatics* just load the class file as usual with `\documentclass{lni}`.

The class file loads a bunch of packages which are all part of modern TEX distributions. Therefore, if you are confronted with a missing package, please try to download and install it using your distribution's package manager. Alternatively got to CTAN to download missing packages.

3.1 Options

Although the class file includes all layout information for a submission to the *Lecture Notes in Informatics*, there are options to adapt the output one way or another.

`english` A document loading the `lni` class file uses German language adoptions by default. To switch to English, just load the class with option `english`.

The language influences not only the hyphenation patterns and terms used in the text, but also the choice of a corresponding BIBTEX file (cf. Section 4.7).

`utf8` `latin1` `applemac` Although nowadays all major plattforms support and widely use UTF-8 encoding for text files, there might be some need to change the input encoding the LATEX document uses.

This can be achieved by giving one of the options `utf8` (which is the default), `latin1` or `applemac` to the document class. Using UTF-8 is strongly recommended. Please note, that currently the bib file is supposed to use the same encoding.

`biblatex` Nowadays bibliographies cannot only be produced with BIBTEX, but with a much more powerful approach consisting of the package biblatex and the tool `biber`.

There is even a specialized package biblatex-lni which is automatically used when setting the class option `biblatex`. Please see as well Section 4.7.

`nocleveref` When referencing figures, one has to type `Figure~\ref{`⟨*label*⟩`}`. The package cleveref reduces the effort by offering the command `\cref{`⟨*label*⟩`}`. This can be used with all floating objects. The package is loaded as default. In case it causes issues, one can disable it using with the `nocleveref` option.

`nohyperref` hyperref is used for colored hyperlink within the articles. If you consider problems or just do not want that feature, you can disable it by using the option `nohyperref`.

4 Setting up a document

You can use the file `lni-author-template.tex` as a starting point for setting up a document for submission. The `lni` class uses the standard ways to build an article.

4.1 Special meta data

There is not just one "TEX" and one "bibliography tool", but many different ways to transform a .tex file into a PDF. Some TEX editors like `TeXstudio`, `TeXmaker` and `TeXshop` support a special set of meta data to tell the editor, how to deal with a concrete document.

A typical example looks like:

```
% !TeX program = pdflatex
% !BIB program = bibtex8
% !TeX encoding = UTF-8
% !TeX spellcheck = en_GB
\documentclass[english]{lni}
```

4.2 Special macros for editors

\startpage
\editor
\booktitle
\year

In addition to the macros stated in Section 4.3 for authors, there are special editor macros to influence the layout of the article:

- `\startpage` determines the starting page of the article. This should always be an odd (right) page.
- `\editor` states the name of the editor(s)
- `\booktitle` holds the name of a conference
- `\year` can be used to set the year

4.3 Title page

\title

The title of your work is given using the `\title` macro. In addition to the title itself, you can add a short title to be used in the header of a page:

```
\title[Short title]{Title}
```

\author
\email
\footnote

The authors of an article are given using the standard `\author` macro. Multiple authors are separated by `\and`; affiliations have to be added with `\footnote{⟨affiliations⟩}` where you can use `\email{⟨email address⟩}` for the email address of an author:

```
\author[Author 1 \and Author 2]{%
   Author 1\footnote{Affiliations including \email{email@author1}} \and%
   Author 2\footnote{Affiliations including \email{email@author2}}}
```

In case the authors are too long for the page header, see Section 4.5 of how to shorten the authors for the page header.

Finally `\maketitle` will output the formatted title page.

4.4 Abstract and keywords

Each article should start with a short abstract and some keywords. Please use the environments `abstract` and `keywords` for that purpose:

```
\begin{abstract}
Tell the reader what your article is about
\end{abstract}
\begin{keywords}
Give some keywords to categorize your article
\end{keywords}
```

4.5 Page header

The template automatically sets the page headers according to the requirements of LNI. From page 2 onwards, the title and the authors are printed. These information has to stay in one line. In case the title is too long, use the optional argument for `\title`:

```
\title[Short title]{Title}
```

\authorrunning

In case there are many authors on a paper, they might not fit into the paper. For that purpose, additionally use `\authorrunning`:

```
\authors[Firstname1 Lastname1 \and Firstname2 Lastname2 \and Firstname3 Lastname3]
 {Firstname1 Lastname1\footnote{...} \and Firstname2 Lastname2\footnote{...} \and
  Firstname3 Lastname3\footnote{...}}
\authorrunning{Lastname1 et al.}
```

4.6 Main text

4.6.1 Headings

\section
\subsection
\subsubsection

You can use the standard macros `\section`, `\subsection`, … for sectioning your text.

4.6.2 Footnotes

\footnote

For adding a footnote, just use `\footnote{`⟨*footnote text*⟩`}` where needed. Please note, that the footnote counter is automatically set to the correct value at the beginning of your text, i. e. it respects the number of affiliations given on the title page.

4.6.3 Lists

itemize
enumerate

The `lni` class redefines the standard lists environments `itemize` and `enumerate` to meet the requirements of the *Lecture Notes in Informatics*.

Lists can be filled as usual by adding `\item` macros.

4.6.4 Floating objects

figure
table

The environments `figure` and `table` can be used the standard way to include graphics or tables resp.

However, please note, that the default placement parameters are changed to `htbp` by the class `lni`. If you need some local adjustment, please use the optional argument of both environments (cf. Listing 4.6.4).

\caption
\label

A caption should be added by `\caption{`⟨*caption text*⟩`}`, followed immediately by a `\label{`⟨*unique label*⟩`}` entry.

```
\begin{figure}[tb]
   \includegraphics{...}
   \caption{...}
   \label{...}
\end{figure}
```

If you want to center floats, please *do not* use the `center` environment, but the macro `\centering`, which does not add extra white space (cf. Listing 4.6.4).

```
\begin{table}
   \centering
   \begin{tabular}{lll}
   ...
   \end{tabular}
   \caption{...}
   \label{...}
\end{table}
```

4.6.5 Listings / Source code

The `lni` bundle loads the verbatim and listings package. While the former is there for compatability, the later is the standard way of integrating source code listings into a LaTeX document.

However, there are currently no config files shipped with the `lni` bundle. Please consult the documentation for help on setting up listings for a specific programming language.

4.6.6 Math

If you need mathematics, you can load amsmath and mathtools for additional features. The `lni` class offers by default the command `\powerset` to render the powerset symbol correctly as $\powerset$ and not as Weierstrass p ($\wp$).

4.7 Bibliography

The old `lni` class file only supports BibTeX with bst files for German and English submissions resp. If you want to use this approach for your article you have to add `\bibliography{`⟨*Bib file*⟩`}` at an appropriate position within your text. The correct bst file is loaded automatically.

With option `biblatex` (cf. Section 3.1) you can easily switch to the modern biblatex package. However, you have to add information on the bib file(s) in your preamble using `\addbibresource{`⟨*Bib file(s)*⟩`}` and call `\printbibliography` where you want the bibliography to appear.

Please note, that the `lni` class sets `biber` as the default bibliography tool. `biber` is part of both major TeX distributions and can easily be used within most TeX editors, e. g. by using special meta data as described in Section 4.1.

If you want to pass settings to biblatex you can use a config file `biblatex.cfg`, for additional options please use the macro `\ExecuteBibliographyOptions`. Please consult the package's documentation for more information.

```
% !TeX program = pdflatex
% !BIB program = biber
\documentclass[biblatex]{lni}
...
\ExecuteBibliographyOptions{...}
\addbibresource{$FILENAME.bib}
...
\begin{document}
...
\printbibliography
...
\end{document}
```

5 Trouble shooting

This section lists the most common issues when using this template. For more help, please head to the awesome LaTeX list.

- If the compiler error is
  `! pdfTeX error (font expansion): auto expansion is only possible with scalable fonts.`,
  then you have to install the cm-super package. Afterwards, run `initexmf -mkmaps` on the command line. A longer discussion is available at `http://tex.stackexchange.com/a/324972/9075`.
- If the compiler error is
  `! LaTeX Error: Command \openbox already defined.`,
  insert
  `\let\openbox\relax` before `\usepackage{amsthm}`.
- If the compiler error is
  `! Undefined control sequence. l.84 \ulp@afterend`,
  just clean up (remove `paper.aux`) and recompile.
- If the compiler error is
  `! Package xkeyval Error: 'family_i' undefined in families blx@opt@namepart'.`,
  it is an indicator that you switched from BibTeX to biblatex. Clean up (remove `paper.bbl`) and recompile.
- Errors with BibTeX: The bst files may still report errors, although the output is okay. This will be solved as soon as possible. However, you might consider switching to biblatex (cf. Section 4.7).

6 Bugs and feature request

If you find a bug or have a feature request, please open an "issue" at the GitHub website.