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

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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 Gesellschaft für Informatik e. V. (GI) 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 incorporate without changing the existing mechanisms too much.

There is an additional package biblatex-lni for an easy way of getting a correctly formed bibliography. This package can be incorporated using the option `biblatex`. See Section 4.6 for more information.

2 Installation

The `lni` bundle is currently distributed via GitHub 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.

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For a manual installation please call `pdflatex lni.dtx` at least twice and copy all resulting files (cls, tex, pdf and bst) to your local TEXMF tree. Don't forget to update your file name database.

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 go to CTAN to download missing packages.

The `lni` class can be used with pdfLATEX as well as with XELATEX and LuaLATEX. To achieve same results, the Type1-based packages newtxtext, newtxmath and newtxtt are used even for the unicode engines.

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` (*Opt*)
: 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 4.6).

`utf8 (deprecated in v1.8)` (*Opt*)
`latin1 (deprecated in v1.8)` (*Opt*)
`applemac (deprecated in v1.8)` (*Opt*)
: 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 (deprecated in v1.8; will become default option in next major release)` (*Opt*)
: 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`. For more information see as well Section 4.6.

`crop (new in v1.1)` (*Opt*)
: Option `crop` gives you some crop marks (using the package crop) to better illustrate the final result of your article.

`nocleveref` (*Opt*)
: 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 (deprecated in v1.8)` (*Opt*)

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

`nofonts (deprecated in v1.4)` (*Opt*)

On old systems you might not have installed the New TX fonts. If for whatever reason the `oldfonts` option does not work for you, you can activate option `nofonts`. This allows to suppress font loading completely using the engines standard fonts instead. Usually there should be no need to do so. Please note, that your output will differ from the publishers'.

`oldfonts (deprecated in v1.8)` (*Opt*)

On older systems you might not have installed the New TX fonts. Therefore option `oldfonts` allows to to load the package mathptmx instead of the New TX fonts. The output will be in accordance to (or at least near) the publisher's requirements.

`norunningheads (deprecated in v1.8)` (*Opt*)

By default there are no more running headers from your document.

`runningheads (new in v1.8)` (*Opt*)

Editors can turn on the running headers using option `runningheads`.

`anonymous (new in v1.8)` (*Opt*)

To easily anonymize a paper for blind review, use this option. Then all author information will be replaced with a placeholder. Additionally, there is a new macro `\anon{`⟨*hide in review*⟩`}` which will be replaced with "ANONYMIZED" if the option is set. Also, `\anon[`⟨*for review*⟩`]{`⟨*for final version*⟩`}` can be used that outputs "for review" if the option is set, and "for final version" otherwise.

4 Setting up a document

You can use the file

lni-author-template.tex (*file*)

as a starting point for setting up a document for submission. The `lni` class uses the standard ways to build an article. A larger German example can be found in

lni-paper-example-de.tex (*file*)

4.1 Special meta comments

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 comments to give some information, how to deal with a concrete document.

A typical example looks like:

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

4.2 Special macros for editors

\startpage
\editor
\booktitle (changed in v1.6)
\booksubtitle (new in v1.6)
\yearofpublication (new in v1.7)

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 (optional argument for a short title used in the running headers)
- `\booksubtitle` holds an optional subtitle of a conference
- `\yearofpublication` can be used to set the year of publication

4.3 Title page

\title
\subtitle (new in v1.1)

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}
```

You can also add a subtitle by `\subtitle{`⟨*subtitle*⟩`}`.

`\author`
`\email`
`\footnote (deprecated in v1.8)`
`\and (deprecated in v1.8)`
`\affil`

The authors of an article are given using an extended `\author` macro, which holds not only the name, but also email adress and ORCID iD. Moreover the affiliation marker (number) is given as an optional argument. Affiliations are added with `\affil[`⟨*number*⟩`]{`⟨*information*⟩`}` where you can use `\\` to split the address.

```
\author[1]{Firstname1 Lastname1}{firstname1.lastname1@affiliation1.org}{0000-0000-0000-0000}
\author[2]{Firstname2 Lastname2}{firstname2.lastname2@affiliation2.org}{0000-0000-0000-0000}
\author[1]{Firstname3 Lastname3}{firstname3.lastname3@affiliation1.org}{0000-0000-0000-0000}
\author[1]{Firstname4 Lastname4}{firstname4.lastname4@affiliation1.org}{0000-0000-0000-0000}%
\affil[1]{Universität\\Abteilung\\Straße\\Postleitzahl Ort\\Land}
\affil[2]{University\\Department\\Address\\Country}
```

Leave the third and/or fourth argument empty if there is no email address and/or ORCID iD. Finally `\maketitle` will output the formatted title page.

`\lnidoi (new in v1.2)`

LNI provides a DOI for each paper. In case, the DOI is known, it can be specified using the `\lnidoi` macro.

```
\lnidoi{18.18420/se2016_01}
```

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

4.4 Abstract and keywords

`abstract` (*env.*)
`keywords` (*env.*)
`\and (new in v1.1)`

Each article should start with a short (70 to 150 words) 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. You can use \and between two
keywords to get the correct delimiter (comma plus space) automatically.
\end{keywords}
```

4.5 Main text

4.5.1 Headings

`\section`
`\subsection`
`\subsubsection`

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

4.5.2 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.

4.5.3 Lists

`itemize` (*env.*)
`enumerate` (*env.*)

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.

4.5.4 Floating objects

`figure` (*env.*)
`table` (*env.*)

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 4.5.4).

`\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 4.5.4).

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

4.5.5 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.

4.5.6 Math

For writing mathematics the package amsmath is already loaded by default. In addtion you can load e.g. mathtools for additional features. The `lni` class offers by default the command `\powerset` to render the powerset symbol correctly as $\wp$ and not as Weierstrass p ($\wp$).

4.5.7 Abbreviations and initialisms

`\eg` `\ie` `\cf` `\etal`

To achieve consistent typesetting of common abbreviations, macros are predefined by the class. These macros should *consistently* being used instead of writing the plain version. For example use `\eg` rather than `e.g.,`. The macros take care of spacing within and after the abbreviations.

- `\eg` for e. g.
- `\ie` for i. e.
- `\cf` for cf.
- `\etal` for et al.

`\OMG` `\BPM` `\BPMN` `\UML`

In addition to common abbreviations, further initialisms are provided by the class for convenience and for a consistent visual appearance. Note that the class uses SMALLCAPS for typesetting initialisms. The list of predefined initialisms comprises:

- `\OMG` for OMG (Object Management Group).
- `\BPM` for BPM (Business Process Management).
- `\BPMN` for BPMN (Business Process Model and Notation).
- `\BPEL` for BPEL (Business Process Execution Language).
- `\UML` for UML (Unified Modelling Language).

`\lniinitialism` You can add your own initialisms by stating `\lniinitialism{⟨\initialism_macro⟩}{⟨text⟩}` in the preamble.

4.6 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 document option `biblatex` (cf. Section 3.1) you can easily switch to the biblatex style "lni" provided by biblatex-lni. 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@name part'.`,
  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 4.6).

6 Bugs and feature request

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