

# l<sub>ni</sub> – Official class for submissions to the “Lecture Notes in Informatics”<sup>\*</sup>

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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.

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 `MiK $\TeX$`  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 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.

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<sup>\*</sup>This file describes version v1.7, last revised 2021/03/02.

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### 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  $\text{pdf}\mathcal{E}\mathcal{T}\mathcal{E}\mathcal{X}$  as well as with  $\text{X}\mathcal{E}\mathcal{L}\mathcal{A}\mathcal{T}\mathcal{E}\mathcal{X}$  and  $\text{Lua}\mathcal{E}\mathcal{T}\mathcal{E}\mathcal{X}$ . 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` 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  $\text{BIB}\mathcal{E}\mathcal{T}\mathcal{E}\mathcal{X}$  file (cf. [Section 4.7](#)).

`utf8` Although nowadays all major platforms support and widely use UTF-8 encoding for text files, there might be some need to change the input encoding the  $\mathcal{E}\mathcal{T}\mathcal{E}\mathcal{X}$  document uses.

`latin1` 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.

`appplemac` Nowadays bibliographies cannot only be produced with  $\text{BIB}\mathcal{E}\mathcal{T}\mathcal{E}\mathcal{X}$ , 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 4.7](#).

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

`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 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` (new in v1.3, deprecated in v1.4) 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` (new in v1.4) 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` (new in v1.5) To easily remove all running headers from your document, you can use the option `norunningheads`.

## 4 Setting up a document

You can use the file `lmi-author-template.tex` as a starting point for setting up a document for submission. The `lmi` 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_US
\documentclass[english]{lmi}
```

### 4.2 Special macros for editors

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

- `\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
- `\year` can be used to set the year

### 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
\and
```

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.

```
\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` Each article should start with a short (70 to 150 words) abstract and some keywords.  
`keywords` Please use the environments `abstract` and `keywords` for that purpose:

`\and` (new in v1.1)

```
\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 (semicolon plus space) automatically.
\end{keywords}
```

## 4.5 Page header

The template automatically sets the page headers according to the requirements of *Lecture Notes in Informatics*. From page 2 onwards, the title and the authors are printed. This 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`:

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

`\subsection`

`\subsubsection`

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

`enumerate`

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

#### 4.6.4 Floating objects

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

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

`\caption` A caption should be added by `\caption{<caption text>}`, followed immediately by  
`\label` 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 `luni` bundle loads the `verbatim` and `listings` package. While the former is there for compatibility, the later is the standard way of integrating source code listings into a  $\text{\LaTeX}$  document.

However, there are currently no config files shipped with the `luni` 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 packages `amsmath` and `mathtools` for additional features. The `luni` class offers by default the command `\powerset` to render the powerset symbol correctly as  $\wp$  and not as Weierstrass  $p$  ( $\wp$ ).

#### 4.6.7 Abbreviations and initialisms

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

- `\eg` for e. g.
- `\ie` for i. e.

- `\cf` for cf.
- `\etal` for et al.

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

- `\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.

## 4.7 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 L<sup>A</sup>T<sub>E</sub>X 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 B<sub>I</sub>B<sub>T</sub>E<sub>X</sub> to biblatex. Clean up (remove paper.bbl) and recompile.
- Errors with B<sub>I</sub>B<sub>T</sub>E<sub>X</sub>: 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](#).