

Indian T_EX Users Group

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On-line Tutorial on L^AT_EX

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This document is generated from L^AT_EX sources compiled with pdfL^AT_EX v. 14e in an INTEL Pentium III 700 MHz system running Linux kernel version 2.2.14-12. The packages used are hyperref.sty and pdfscreen.sty

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15 Bibliographic Databases

Bibliographic Database is a database where all the useful bibliographic entries can be stored. The information about the various publications is stored in one or more files with the extension `.bib`. For each publication there is a *key* that identifies it, and which may be used in the text document to refer to it. And this is available for all documents with a list of reference in the field. This database is useful for the authors/researchers who are constantly referring to the same publications in most of their works. This database system is possible with the BibTeX program supplied with the L^AT_EX package.

15.1. The BibTeX program

BibTeX is an auxiliary program to L^AT_EX that automatically constructs a bibliography for L^AT_EX document from one or more databases. To use BibTeX, you must include in your L^AT_EX input file a `\bibliography` command whose argument specifies one or more files that contain the database. For example

```
\bibliography{database1,database2}
```

The above command specifies that the bibliographic entries are obtained from *database1.bib* and *database2.bib*. To use BibTeX, your L^AT_EX input file must contain a `\bibliographystyle`

command. This command specifies the *bibliography style*, which determines the format of the source list. For example, the command

```
\bibliographystyle{plain}
```

specifies that entries should be formatted as specified by the `plain` bibliography style (`plain.bst`). We can put `\bibliographystyle` command anywhere in the document after the `\begin{document}` command.

15.2.

BibTeX Style files

- plain** Standard BibTeX style. Entries sorted alphabetically with numeric labels.
- unsrt** Standard BibTeX style. Similar to **plain**, but entries are printed in order of citation, rather than sorted. Numeric labels are used.
- alpha** Standard BibTeX style. Similar to **plain**, but the labels of the entries are formed from the author's name and the year of publication.
- abbrv** Standard BibTeX style. Similar to **plain**, but entries are more compact, since first names, month, and journal names are abbreviated.
- acm** Alternative BibTeX style, used for the journals of the Association for Computing Machinery. It has the author name (surname and first name) in small caps, and numbers as labels.



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apalike Alternative BibTeX style, used by the journals of the American Psychology Association. It should be used together with the L^AT_EX **apalike** package. The bibliography entries are formatted alphabetically, last name first, each entry having a hanging indentation and no label.

Examples of some other style files are:

abbrv.bst, abstract.bst, acm.bst,	kluwer.bst, named.bst, named.sty,
agsm.bst, alpha.bst, amsalpha.bst,	natbib.sty, natbib.bst, nature.sty,
authordatei.bst, authordate1-4.sty,	nature.bst, phcpc.bst, phiaea.bst,
bbs.bst, cbe.bst, cell.bst, dcu.bst,	phjcp.bst, phrmp.bst plainyr.bst,
harvard.sty, ieetr.bst, jtb.bst,	siam.bst

Various organisations or individuals have developed style files that correspond to the house style of particular journals or editing houses. We can also customise a bibliography style, by making small changes to any of the .bst file, or else generate our own using the makebst program.

15.2.1. Steps for running BibTeX with L^AT_EX

- (1) Run L^AT_EX, which generates a list of `\cite` references in its auxiliary file, .aux.
- (2) Run BibTeX, which reads the auxiliary file, looks up the references in a database (one or more .bib files, and then writes a file (the .bbl file) containing the formatted references according to the format specified in the style file (the .bst file). Warning and error messages are written to the log file (the .bblg file). It should be noted that BibTeX never reads the original L^AT_EX source file.
- (3) Run L^AT_EX again, which now reads the .bbl reference file.
- (4) Run L^AT_EX a third time, resolving all references

Occasionally the bibliography is to include publications that were *not* referenced in the text. These may be added with the command



```
\nocite{key}
```

given anywhere within the main document. It produces no text at all but simply informs BibTeX that this reference is also to be put into the bibliography. With `\nocite{*}`, every entry in all the databases will be included, something that is useful when producing a list of all entries and their keys.

After running BibTeX to make up the .bbl file, it is necessary to process L^AT_EX at least twice to establish both the bibliography and the in-text reference labels. The bibliography will be printed where the `\bibliography` command is issued; it in fact inputs the .bbl file.

15.3. Creating a bibliographic database

Though bibliographic database creation demands more work than typing up a list of references with the `thebibliography` environment; it has a great advantage that, the entries need to be included in the database only once and are then available for all future publications even if a different bibliography style is demanded in later works, all the information is already on hand in the database for BibTeX to write a new `thebibliography` environment in another format. Given below is a specimen of an entry in bibliographic database:

```
@BOOK{knuth:86a,  
  AUTHOR      ="Donald E. Knuth",  
  TITLE       ={"The \TeX{}book},  
  EDITION     ="third"  
  PUBLISHER   ="Addison-Wesley",  
  ADDRESS     ={"Reading, MA},  
  YEAR       =1986 }
```



The first word, prefixed @, determines the *entry_type*. The *entry_type* is followed by the reference information for that entry enclosed in curly braces { }. The very first entry is the *key* for the whole reference by which it is referred to in the `\cite` command. In the above example it is `knuth:86a`. The actual reference information is then entered in various *fields*, separated from one another by commas. Each *field* consists of a *field_name*, an = sign, with optional spaces on either side, and the *field text*. The *field_names* shows above are AUTHOR, TITLE, PUBLISHER, ADDRESS, and YEAR. The *field text* must be enclosed either in curly braces or in double quotation marks. However, if the text consists solely of a number, as for YEAR above, the braces or quotation marks may be left off.

For each entry type, certain fields are *required*, others are *optional*, and the rest are *ignored*. These are listed with the description of the various entry types below. If a required field is omitted, an error message will occur during the \TeX run. Optional fields will have their information included in the bibliography if they are present, but they need not be there. Ignored fields are useful for including extra information in the database that will not be output, such as comment or an abstract of the paper. Ignored fields might also be ones that are used by other database programs.

The general syntax for entries in the bibliographic database reads

```
@entry_type{key,  
  field_name = {field text},  
  ....  
  field_name = {field text} }
```

The names of the *entry_types* as well as the *field_names* may be written in capitals or lower case letters, or in a combination of both. Thus `@BOOK`, `@book`, and `@b00k` are all acceptable variations.

The outermost pair of braces for the entire entry may be either curly braces { }, as illustrated, or parentheses (). In the latter case, the general syntax reads

```
@entry_type(key, ... ..)
```



However, the *field text* may only be enclosed within curly braces {...} or double quotation marks "...” as shown in the example above.

The following is a list of the standard entry types in alphabetical order, with a brief description of the types of works for which they are applicable, together with the required and optional fields that they take.

@article Entry for an article from a journal or magazine

required fields author, title, journal year.

optional fields volume, number, pages, month, note

@book Entry for a book with a definite publisher.

required fields author or editor, title, publisher, year

optional fields volume or number, series, address, edition, month, note

@booklet Entry for a printed and bound work without the name of a publisher or sponsoring organisation

required fields title

optional fields author, howpublished, address, month, year, note

@conference Entry for an article in conference proceedings

required fields author, title, booktitle, year

optional fields editor, volume or number, series, pages, address, month, organisation, publisher, note

@inbook Entry for a part (chapter, section, certain pages) of a book

required fields author or editor, title, chapter and/or pages, publisher, year

optional fields volume or number, series, type, address, edition, month, note



- @incollection** Entry for part of a book that has its own title
required fields author, title, booktitle, publisher, year
optional fields editor, volume or number, series, type, chapter, pages, address, edition, month, note
- @inproceedings** Entry for an article in conference proceedings
required fields author, title, booktitle, year
optional fields editor, volume or number, series, pages, address, month, organisation, publisher, note
- @manual** Entry for technical documentation
required fields title
optional fields author, organisation, address, edition, month, year, note.
- @masterthesis** Entry for a Master's thesis
required fields author, title, school, year
optional fields type, address, month, note
- @misc** Entry for a work that does not fit under any of the others
required fields none
optional fields author, title, howpublished, month, year, note
- @phdthesis** Entry for a PhD thesis
required fields author, title, school, year
optional fields type, address, month, note
- @proceedings** Entry for conference proceedings
required fields title, year
optional fields editor, volume or number, series, address, month, organisation, publisher, note

`@unpublished` Entry for an unpublished work with an author and title
required fields author, title, note
optional fields month, year

15.3.1. Example of a \LaTeX file (sample.tex) using bibliographical database (bsample.bib)

```
\documentclass{article}  
\pagestyle{empty}  
\begin{document}
```

```
\section*{Example of Citations of Kind \texttt{plain}}
```

Citation of a normal book`\cite{Eijkhout:1991}` and an edited book`\cite{Roth:postscript}`. Now we cite an article written by a single`\cite{Felici:1991}` and by multiple authors`\cite{Mittlebatch/Schoepf:1990}`. A reference to an article inside proceedings`\cite{Yannis:1991}`. We refer to a manual`\cite{Dynatext}` and a technical report`\cite{Knuth:WEB}`. A citation of an unpublished work`\cite{EVH:Office}`. A reference to a chapter in a book`\cite{Wood:color}` and to a PhD thesis`\cite{Liang:1983}`. An example of multiple citations`\cite{Eijkhout:1991,Roth:postscript}`.

```
\bibliographystyle{plain} %% plain.bst  
\bibliography{bsample} %% bsample.bib  
\end{document}
```



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15.3.2. Procedure for producing References for the above file sample.tex which uses bibliographic data base bsample.bib

```
$ latex sample      %%%%%%%%%% 1st run of LaTeX

$ bibtex sample     %%%%%%%%%% BibTeX run
                    %%%%%%%%%% Then sample.bbl file will
                    %%%%%%%%%% be produced

$ latex sample      %%%%%%%%%% 2nd run of LaTeX

    If still unresolved citation references

$ latex sample      %%%%%%%%%% 3rd run of LaTeX
```



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