

# Making Bibliographies Using BibTeX

Behnam Sattarzadeh  
Yaser Ganji Saffar  
Mehdi Asadpur

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## Abstract

This article describes how to use BibTeX package for creating bibliographies for L<sup>A</sup>T<sub>E</sub>X documents. It also describes bibliography database entry formats and standard styles available on BibTeX.

## Introduction

If you want to write just one paper with some references, you can use the L<sup>A</sup>T<sub>E</sub>X features such as *thebibliography* environment and `\bibitem`. But if you plan on writing a bunch of papers on the same topic you might consider using BibTeX. BibTeX is a package designed by Oren Patashnik and Leslie Lamport in 1985 for the L<sup>A</sup>T<sub>E</sub>X document preparation system. When using it you need only to maintain one database file with bibliography information, which can be read into any number of documents, and the bibliography is automatically made when the file is processed. The format is entirely character based, so it can be used by any program. BibTeX is field based and it will ignore unknown fields, so it is expandable and it is probably the most common format for bibliographies on the internet.

Using BibTeX has many advantages over using manual bibliographies. Some of its advantages are consistency in preparation of entries, ease of changing bibliography style, correct numbering and sequential ordering of entries in the bibliography.

Suppose you have written a large document with hundreds of bibliography items for an organization with a specific style and now you want to send it to another organization with another style, without using BibTeX you must change all the items manually which will waste your time and may cause errors. But by using BibTeX you should just change the style to the appropriate form and compile it.

## Creating and maintaining the database

The main advantage of BibTeX is that you only have to enter each reference into a database and then use it in all of your documents. So the first step using it is to create the database. You can have more than one database at the same time. For example it is good to create at least two databases, one for your own publications and the other for other publications you probably like to cite. Database files should be saved by .bib postfix. If you want to have a system-wide access to your database, you should place it in

```
<texmf>/bibtex/bib
```

directory, where `<texmf>` is the root directory of the user's T<sub>E</sub>X installation.

The second step is to choose a naming scheme for naming keys. Keys are used in documents for referencing bibliography items in the database. Naming scheme is absolutely arbitrary and you only have to ensure that each entry remains unique. For example you can use the first author by the year of publishing, like Ganji:2003.

The third step is to decide which kind of publication you want to enter in database. There are many kind of entries that you can enter in your database file. Some of the standard entry types are:

- @article  
An article from a journal or magazine.
- @book  
A book with an explicit publisher.
- @booklet  
A work that is printed, but without a named publisher.
- @conference  
A conference article.
- @phdthesis  
A PhD thesis.
- @manual  
A technical documentation.
- @misc  
Use this type when nothing else fits.

For a complete list of entry types refer to [3].

Each entry consists of a label and a number of field definitions each terminated by a comma and the entire list is enclosed in curly braces. Below is an example:

```

@article{Lamport:1986,
  author   = "Leslie A. Lamport",
  title    = "The Gnats and Gnus Document Preparation System",
  journal   = "G-Animal's Journal",
  volume   = 41,
  number   = 7,
  year     = 1986,
  month    = jul,
  pages    = "73+",
  note     = "This is a full article entry"
}

```

In the above example `Lamport:1986` is the key for the article which will be used by documents to cite to it.

## Using BibTeX

Using BibTeX is quite easy. Simply add the following commands to where you want the bibliography to appear in your document.

```

\bibliographystyle{yourStyle}
\bibliography{database}

```

The first command will choose the style of bibliographies. By using a specific style you will tell BibTeX some information such as the order of items in bibliography. In this command you should substitute *yourStyle* with a .bst file. For example you can refer to IEEE site<sup>1</sup> and download it's style and use it. You can also write a new style file for yourself (for information on how to write an style file refer to [4]). You can also use the following standard styles:

- plain:  
Entries are sorted alphabetically, labeled with numbers.
- unsrt:  
Entries are appear in the order of their first citation, labeled with numbers.
- alpha:  
Same as plain except that labels are formed from the authors' names and the year of publication.
- abbrv:  
Same as plain except that entries are a bit more compact because the authors' first names, months, and journal names are abbreviated.

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<sup>1</sup><http://www.ieee.org>

In the second command you should substitute *dbname* with file name of your database(.bib file). For referencing to this article just put the following command everywhere you want to refer to it:

```
\cite{Lamport:1986}
```

If you want to have some entries on your bibliography part, but these entries are not cited directly in your text you can use the following command:

```
\nocite{label}
```

In this command replace *label* with your entry key.

For creating the document you should issue the following commands:

```
latex filename  
bibtex filename  
latex filename  
latex filename
```

You need to run latex twice after bibtex to get all numbers right. Of course during editing, you would only occasionally go through this cycle. As long as your database and your citations have not changed, you do not need to call bibtex.

## Summary

In this article we introduced you with the BibTeX package, which helps you create your documents faster, specially when you have a long list of bibliography entries. We described bibliography database format and standard styles available for formatting output of the BibTeX. At last we described, how to compile your documents with BibTeX.

## References

- [1] D. E. Knuth. *The TeX book*. Addison-Wesley, 1984.
- [2] L. Lamport. *LaTeX – A Document Preparation System*. Addison-Wesley, first edition, 1985.
- [3] Oren Patashnik. *BIBTeXing*, February 1988.
- [4] Oren Patashnik. *Designing BIBTeX styles*, February 1988. The part of BIBTeX's documentation that is not meant for general users.
- [5] Michael Shell. *How to Use the IEEEtran BibTeX Style*, 2002.