Using Reference Management Packages with \LaTeX

*A Brief Guide*

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Introduction

LaTeX is a popular typesetting system that can give a professional look to publications. Some people find LaTeX particularly useful for managing large documents or for processing documents that make heavy use of mathematical formulae and equations. LaTeX is not a word-processor like Microsoft Word, LaTeX does not format your document as you create it. Rather, mark-up codes are embedded in the LaTeX document by the user and then the whole document is compiled in one go to produce the formatted finished product.

While preparing a LaTeX document, it is often necessary to cite and reference a source using a standard author-date or numbered referencing system. Referencing will normally consist of an in-text citation, for example (Blogs 2012), and a full bibliographic reference at the end of the document, for example –


Users of LaTeX can employ the BibTeX program to help automate some aspects of citing and referencing in a LaTeX document. BibTeX can be used to substitute special citation ‘place holders’ in a text with correctly formatted in-text citations during compilation and then produce a properly organised and formatted bibliography at the end of the document. This can be done in a range of different citation styles by incorporating different style packages into the compilation process.

The information for creating the in-text citations and references is drawn from a BibTeX (.bib) file. This plain text file contains information about each reference a user wishes to cite laid out in a specific structure. For example, the .bib file to produce the reference above would look something like this –

@Article{Blogs2012,
  Author = {Joe Blogs},
  Title = {A guide to negative results},
  Journal = {Journal of Difficult Research},
  Volume = {24},
  Number = {3},
  Pages = {20--25}
}

Once created, the .bib file can be reused in multiple documents. However, creating a highly structured .bib file for a large number of references is time consuming. Many students and researchers use reference managers such as EndNote or RefWorks to keep track of their reading and sources. Usually, reference managers have the ability to both import and export .bib files which are compatible with BibTeX. The reference manager can therefore take some of the hard work out of creating the .bib file. They can also read existing BibTeX files so a user who has previously been making .bib files manually or who has extracted them from another program, can easily bring them into a reference management package.

Unfortunately, reference managers vary in the support they offer for creating and manipulating .bib files. This guide aims to illustrate the differing functionality of several reference management packages in relation to BibTeX and LaTeX. It is not intended to be a comprehensive guide to using LaTeX or BibTeX. It is also important to note that all the reference managers discussed here do only provide limited support for using BibTeX, no package supports the kind of point-and-click citing in documents provided
by reference manager plug-ins for Microsoft Word. Additionally, it must be remembered that transferring references from one format to another can sometimes scramble information, so some necessary manual checking and editing of exported BibTeX files should be expected! There are suggestions at the end of this document on where to get further help with using LaTeX and BibTeX.

**Creating a bibliography in LaTeX using BibTeX**

In order to create a bibliography in LaTeX it is necessary to carry out several steps.

**Creating the .bib file**

This is where your reference manager can help. You begin by exporting the references from your reference manager into a BibTeX format. Make sure that the file you save has a .bib extension and that it is saved in the same directory/folder on your computer as the source file for your LaTeX document. You may wish to open the BibTeX file with a plain text editor and edit or remove fields at this stage.

**Adding citation place holders**

As you are writing your LaTeX document, you need to place the \cite{cite-key} at the points in your text where you wish the in-text citations to appear. Variations of the \cite command can instruct BibTeX to use numbered or author-date in-text citations or can add information such as specific page numbers to a citation.

**Compiling the document**

In order to compile the LaTeX document with included citations you must add the line –

\usepackage{natbib}

\bibliographystyle{plainnat}
\bibliography{your_bib_file}

at the point you wish the bibliography for your document to appear. The example below illustrates what the finished script should look like.

\documentclass [12pt,a4paper]{article}
\usepackage{natbib} %natbib package allows you to cite using author-date or numbered styles
\begin{document}
\section{Introduction}
In this article we will discuss how to cite references using latex and BibTeX. When you want to cite a book or article, use the 'cite' command with the cite-key for the reference you want as an argument \citep{RefWorks:37}.
\bibliographystyle{plainnat} %choose one of the available bibliography styles
\bibliography{latexrefs} %compile the bibliography using the specified file
\end{document}
Once you have completed the script, compile it using your LaTeX editor in the usual way. Note that you may need to run the compilation two or three times before the document is fully processed. Once completed, the finished document looks like this –

## 1 Introduction

In this article we will discuss how to cite references using LaTeX and BibTeX. When you want to cite a book or article, use the `cite` command with the cite key for the reference you want as an argument [Bard and Rhee, 2004].

**References**


Importing existing BibTeX files

RefWorks, EndNote, Zotero, Mendeley and ColWiz can all import existing BibTeX files. This means that you can use any of these programs to begin managing your references if you already have existing .bib files, you don’t need to re-type everything! BibTeX format files are also a standard way many bibliographic databases and catalogues output reference information for subsequent uploading into reference management software.

Importing a BibTeX file is a straightforward process and follows the same basic pattern in all the reference management packages discussed here.

1. Find the ‘Import’ option in the reference management package, this is usually fairly obviously located under the ‘File’ or ‘References’ or ‘Import’ menu.

2. Once you have located the import option, you will be asked to specify the file to import from your computer.

3. There will also normally be a dropdown menu that allows you to select the type of file you are importing; it’s important that you select the ‘BibTeX’ or ‘.bib’ option from these menus.

4. Once you have specified the required file and indicated that it is in BibTeX format you can begin the import process by clicking any ‘Import’ or ‘OK’ button that is displayed.

5. Once your files have been imported it is advisable to check the imported records carefully to make sure that the records appear as you expect, occasionally information is lost during import or not assigned to the correct field. If you have a large number of records to import, you may wish to process them in small batches to make it easier to detect any problems.
Endnote

Endnote is a popular reference management package. It is able to import and export .bib files. One significant problem with using EndNote to generate .bib files is that EndNote does not by default include a cite-key within records in the .bib file that BibTeX can interpret. A cite-key needs to be manually added to every record in your EndNote library you wish to cite. This can be done by adding the key to the ‘Label’ field of each EndNote record.

Adding labels to EndNote records
For each record you wish to include in your BibTeX file you need to do the following.

1. Load the EndNote program and open your reference library.
2. Right click on any record, from the pop-up menu select the ‘edit references’ option.
3. The reference editing box will open. Scroll down the list of available fields until you find the ‘label’ field.
4. Type a label into the field. This will be used by EndNote to generate a cite-key for each record in an exported BibTeX file. Make sure that every record receives a unique label.
5. Once you have added the label simply close the editing window to save your changes.

Adding Cite-keys Using JabRef
JabRef is a third party open-source application that can be used to manipulate BibTeX files. JabRef can automatically add cite-keys to records in a BibTex file thus helping to overcome the limitations of EndNote. JabRef is available for Windows, Mac and Linux and has the ability to import existing EndNote files and convert them to BibTex. The software can be downloaded from the project website here - http://jabref.sourceforge.net/index.php
Exporting a BibTeX file

1. Load the EndNote program and open your library.
2. If you wish, highlight a small number of records that you want to export, you will have the option later to export just selected records or your whole library.
3. Go to the ‘file’ menu and select the ‘export’ option.
4. On the export dialog box that appears, choose a file name and location for the exported file on your computer.
5. Change the output style to ‘BibTeX Export’. If you do not see a ‘BibTeX export’ option, you first need to choose the ‘select another style’ option. This will open a dialog box you can use to search for the ‘BibTeX Export’ style. Once you have located this style, click the ‘Choose’ button.

6. If you only wish to export records you selected earlier, make sure the box for ‘Export selected references’ is ticked.
7. Finally, click the ‘Save’ button and EndNote will create the BibTeX file.

Potential problems

- When EndNote creates the BibTeX file it still gives the file a .txt file extension. You should change this to .bib.
- Using the same label/cite-key for two or more records. This will cause problems during compilation of your document. Each record must have a unique cite-key.
- Certain characters have special meaning for LaTeX (such as ‘&’) and if these characters appear in your references they can cause problems when compiling your LaTeX script. You may need to
edit your .bib file to make sure that these special characters are preceded with the LaTeX backslash escape character (e.g. \& instead of just &).

**Citing in LaTeX**

Unfortunately, EndNote does not provide support for helping to create in-text citations in your LaTeX script. Citations must be added manually.

1. Open your LaTeX script in your preferred editor.
2. Position your cursor at the point in the text where you wish the citation to appear.
3. Type in the \cite command. Look up the cite-key by opening your .bib file in a text editor and reading off the cite-key from the start of each record. Alternatively, find the relevant record in EndNote and look at the ‘label’ field.
4. Complete the \cite command by typing in the cite-key between curly braces – e.g. \cite{Brown_2005}

**RefWorks**

RefWorks can import and export BibTeX files. RefWorks automatically assigns a cite-key to records when it exports a BibTeX file. To do this it uses the Ref ID number that RefWorks allots to each record in your library. This is useful because it helps ensure that all references in your BibTeX file have a unique identifier as the cite-key.

**Exporting a BibTeX file**

1. Login to your RefWorks account online.
2. From the ‘References’ menu, select the ‘Export’ option.
3. In the ‘Export References’ dialog box that appears, choose the folder you wish to export (or simply choose ‘All references’ if you want to generate a BibTeX file for everything in your RefWorks library).
4. Next, select the export format as ‘BibTeX – RefWorks ID’.
5. Finally, click the ‘Export’ button. You should get the option to save a text file that RefWorks will generate (note that you may need to allow pop-ups in your web browser for this to work). Make sure you save the text file with a .bib rather than a .txt extension on the file name.

**Potential problems**

- When records are imported from bibliographic databases they may include additional information in the ‘notes’ field of the RefWorks record. Depending on the citation style you choose when you compile your documents, the contents of this notes field may in included in your bibliography entries. You can remove the information in the notes fields in RefWorks prior to exporting the BibTeX file or after export by editing the ‘notes’ field in each of the records in the .bib file.
- Certain characters have special meaning for LaTeX (such as ‘&’) and if these characters appear in your references they can cause problems when compiling your LaTeX script. You may need to edit your .bib file to make sure that these special characters are preceded with the LaTeX backslash escape character (e.g. \\& instead of just &).
Citing in LaTeX
1. Open your LaTeX script in your preferred editor.
2. Position your cursor at the point in your text where you wish to include a citation.
3. Type in `\cite{Refworks:xx}`, where ‘xx’ represents the RefWorks ID for the reference you wish to cite. The easiest way to look up the ID number for a reference is to open your RefWorks library in a browser and then find the relevant record. The RefWorks ID number is displayed above each record. Alternatively, you can search the BibTeX file for the relevant record.
4. After adding all your citations, compile your LaTeX script to produce the finished document.

Mendeley
Mendeley has quite good support for BibTeX and LaTeX. It is able to –

- Import and export BibTeX files.
- Automatically format special LaTeX characters such as & and % to include the backslash escape character to prevent problems during compilation.
- Automatically create cite-keys for records or allow the user to manually add their own keys.
- Automatically synchronise a BibTeX file with your Mendeley library so that your BibTeX file is always kept up-to-date.
- Automatically generate \cite commands to paste directly into your LaTeX script.

A video tutorial on using your Mendeley references in your LaTeX documents can be found here: [https://weblearn.ox.ac.uk/access/content/group/82f03e90-3351-4abf-ae86-071f5901a201/Sciences/LaTeX/Mendeley/Mendeley.htm](https://weblearn.ox.ac.uk/access/content/group/82f03e90-3351-4abf-ae86-071f5901a201/Sciences/LaTeX/Mendeley/Mendeley.htm)

Enabling BibTeX support in Mendeley
1. Open the Mendeley desktop program on your computer.
2. From the ‘Tools’ menu, select ‘Options’.
3. From the options screen, select the ‘BibTeX’ tab.
4. From here you can –
   a. Turn on automatic support for special characters.
   b. Turn on automatic output of abbreviated journal titles.
c. Create a synchronized BibTeX file for your whole Mendeley library or individual collections.

d. Find information on how to manually edit cite-keys.

5. Once you have set up the options you want, click ‘OK’.

Exporting a BibTeX file
In Mendeley, you can either export BibTeX files by creating a synchronized BibTeX file as described above, or export a BibTeX file manually. For manual exporting you need to do the following.

1. Open the Mendeley desktop program.
2. To export your whole library, go to the ‘File’ menu and select the ‘Export’ option. To export only certain references, highlight the references you wish to export in the Mendeley desktop program and then right click over the highlighted items. From the pop-up menu that appears select the ‘Export’ option.
3. In the Export file window that appears, choose a name and a location for your file. Finally, set the file type to BibTeX and click ‘Save’.

Potential problems
- Remember to tick ‘Use Journal Abbreviations’ if you wish Mendeley to automatically use abbreviated rather than full journal titles in the BibTeX output.
- Mendeley escapes special characters in URLs as well, and so if using a Mendeley created .bib file, make sure not to include \usepackage{url} otherwise special characters will show up escaped in the final document’s URL – making the URL incorrect if copy-pasted into a web browser.

Citing in LaTeX
Mendeley can automatically generate \cite commands for each reference to paste into your LaTeX document.

1. Open the Mendeley desktop program.
2. Find the reference you want to cite.
3. Right click the reference and choose the ‘copy LaTeX citation’ option from the pop-up menu.
4. Open your LaTeX script in your preferred editor and position your cursor at the point at which you want an in-text citation to appear. Use the paste option to add the \cite command to your document.

**Zotero**

Zotero can both import and export BibTeX files. It also has the ability to automatically create cite-keys for including with \cite commands. Zotero also automatically modifies special characters such as ‘%’ when producing BibTeX files so that they do not cause problems during LaTeX compilation.

**Exporting a BibTeX file**

1. Open the Zotero plugin in FireFox or the Zotero Desktop program.
2. From the ‘Actions’ menu, choose the ‘Export Library’ option. Alternatively, highlight individual records and then right-click over one of the highlighted records. From the pop-up menu that appears, choose the ‘Export selected item(s)’ option.
3. From the ‘Export Format’ box that appears, choose the BibTeX option from the list of available outputs. You can also choose to switch between full and abbreviated journal titles for the export. Finally click ‘OK’ and then choose where to save the file on your computer.

**Citing in LaTeX**

Zotero cannot create the full \cite commands for use in LaTeX documents. However, it can automatically copy the cite-key for a particular Zotero record for pasting into a \cite command.

1. Begin by opening the Zotero plugin or the Zotero desktop program.
2. From the ‘Actions’ menu choose the ‘Preferences’ option.
3. Select the ‘Export’ section from the preferences box that appears.
4. Change default output format to ‘BibTeX generic citation style’.

![Zotero Preferences](image)
5. Next, go to the ‘Shortcuts’ section.
6. Look down the list of keyboard shortcuts. Make sure that the shortcut for ‘copy selected item citation to clipboard’ is set to CTRL+ALT+A.
7. Finally, click the ‘Close’ button to close the preferences box.
8. When you wish to create a \cite command, open Zotero and highlight the record you wish to cite.
9. Press the CTRL, ALT and A keys on your keyboard simultaneously.
10. Open your LaTeX script and write the first part of the \cite command where you wish the in-text citation to appear (\cite{}). Position your cursor inside the curly braces and paste in the cite-key that Zotero has copied.

ColWiz

ColWiz is similar to Mendeley in its level of support for LaTeX and BibTeX, but allows you to more tightly control the type of \cite command generated and fine tune the formatting of exported BibTeX references.

A video tutorial on using your ColWiz references in your LaTeX documents can be found here: https://weblearn.ox.ac.uk/access/content/group/82f03e90-3351-4abf-ae86-071f5901a201/Sciences/LaTeX/Colwiz/Colwiz.htm

Exporting a BibTeX file

ColWiz allows you to Export either individual records or collections of records into a BibTeX format.

Individual record(s)
1. Open the ColWiz desktop program.
2. Highlight one or more references and then right-click over one of the highlighted references. From the pop-up menu that appears, select the ‘Export’ option.
3. A set of export options will open on the right of the ColWiz screen.
4. Under the ‘Export as:’ heading, choose the ‘BibTeX (.bib)’ option.
5. You will notice four ‘fine tuning’ option boxes now appear. You can tick these check boxes to change how the records in the .bib file will be formatted. For example, ticking the ‘No latex’ box will prevent ColWiz from automatically handling special characters such as %, & etc.
6. Once you are happy with options you have selected, click the ‘Save as’ button at the bottom of the screen.
7. When prompted, choose a file name and where to save the .bib file on your computer.
**Whole collections**
1. Open the ColWiz desktop program.
2. From the left hand side of the screen find the collection of records you wish to export. Right click on the desired collection. From the pop-up menu that appears, select the ‘Export’ option.
3. Now proceed exactly as directed for individual records.

**Potential problems**
- When saving your file, be sure to give it a .bib extension as part of the file name.

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**Enabling a synchronised BibTeX file**
You can choose to create a BibTeX file that is automatically kept up-to-date with the references from your ColWiz library.

1. Open the ColWiz program.
2. At the bottom right corner of the screen, click the ‘settings’ button.
3. On the settings dialog box that appears, go to the ‘LaTeX options’ tab.
4. Click the ‘Enable LaTeX’ button if it is not already active.
5. Select the option to ‘Automatically save a BibTeX file’. Choose the frequency of saving you would like and then the location on your computer where you would like the BibTeX file to be saved.
6. Click ‘OK’ when you are done.
Citing in LaTeX

1. Open the ColWiz program.
2. Click on the reference you wish to cite.
3. Press CTRL and L keys simultaneously on your keyboard.
4. A dialog box will appear which shows you the completed \cite command for the record along with the option to generate different versions of the \cite command automatically.
5. To choose a different \cite command, simply drop down the menu in the dialog box and pick the command you want.
6. Once you are happy with the command, click the ‘OK’ button.
7. Open your LaTeX script and position the cursor where you want the citation appear. Paste the \cite command that ColWiz has generated.
8. Make sure to all include `\usepackage[url]` at the top of your LaTeX script, otherwise you may have compile errors as Colwiz does not escape URL special characters. Instead they are handled by this package.
LaTeX feature comparison table

The following table provides a brief summary of the LaTeX support features provided by the different reference management packages discussed in this document.

<table>
<thead>
<tr>
<th>Feature</th>
<th>EndNote</th>
<th>RefWorks</th>
<th>Mendeley</th>
<th>Zotero</th>
<th>ColWiz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Import and export BibTeX files.</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Automatically generate cite-keys.</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Automatically manage special characters.</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Automatically synchronise a BibTeX file with reference library.</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Generate \cite commands to paste into LaTeX documents.</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Every effort has been made to try to ensure the accuracy of the information in this document. However, you should always check on the software maker’s website to ensure that you have the latest and most accurate information about any particular package.

Further help

The information presented in this guide only gives an overview of what can be done with LaTeX and BibTeX. Below are a number of suggested resources that can offer more detailed information.

A video tutorial on using the IEEE reference style in your LaTeX documents can be found here: https://weblearn.ox.ac.uk/access/content/group/82f03e90-3351-4abf-ae86-071f5901a201/Sciences/LaTeX/Style/Style.htm
LaTeX and BibTeX

Books
You will find a number of manuals on how to use LaTeX and BibTeX at the Radcliffe Science Library. You can locate these by searching the SOLO catalogue. One comprehensive resource is –


Web links
The LaTeX project website provides excellent resources and guides for finding out more about LaTeX – http://www.latex-project.org/

The BibTeX project site contains useful teaching and reference material for BibTeX in addition to a number of software tools that can help with processing and editing BibTeX files http://www.bibtex.org/

Courses
IT Services at the University of Oxford offer a number of LaTeX courses to full members of the University. You can find full details of these on the IT Services course catalogue. http://courses.it.ox.ac.uk/cgi-bin/public/courses.pl?mode=catalogue

Reference managers
The Bodleian Libraries have prepared a LibGuide which describes a number of popular reference management packages. This guide also includes basic ‘quick start’ information sheets that you can download, as well as links to the different software makers websites. You can find the LibGuide at the following link – http://ox.libguides.com/reference-management

The Bodleian Libraries also provide a range of courses on reference management tailored to different subject areas and software packages. You can find out about these on our WISER course guide or by contacting your library or Subject Librarian. http://ox.libguides.com/content.php?pid=289070&sid=2376530