

Latex, Linux, Literature

Essay Vortrag zum Thema Latex und Literaturverwaltung

Lukas Fesenmeier

Fokus auf Arbeiten mit dem Terminal und Open Source
Literaturverwaltung JabRef and Zotero

Topics

- Why not overleaf?
- Prerequisites and Installation
- Few words to version control and Github
- Working with Latex in the command line
- Enabling biber and multiple latex run
- Literature management
 - Jabref
 - Zotero

Convenient way: Overleaf!

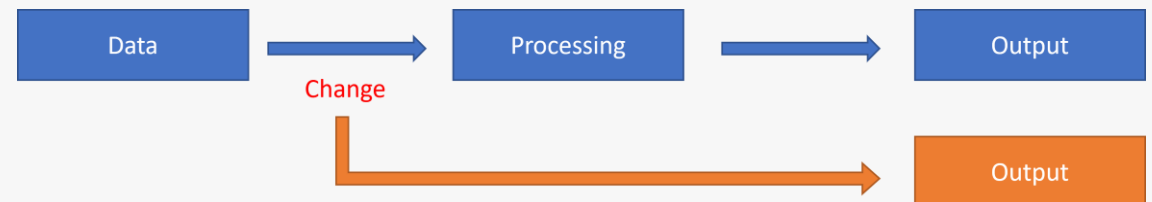
- Cloud based Latex Editing
- Multiple Editors simultaneously
- No Installation required
- Everywhere accessible

→ Highly recommended whenever possible



When not to use Overleaf?

- Sensitive unpublished data
- Cloud services forbidden by contract, not a rare occurrence in pharma
- No reliable Internet connection
- Using of customized packages, which are not part of the main distribution
- Integration in Local Automatization and Data Pipelines, change in upstream affects downstream document

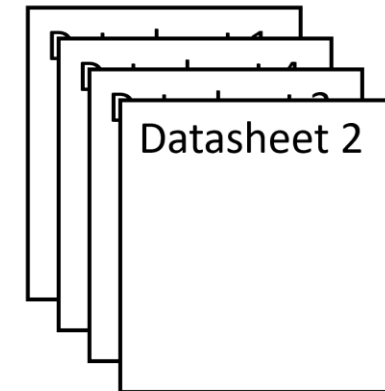


Data Pipeline Example

- Antibody Supplier with 10000 antibody portfolio
- Each comes with individual datasheet: 10000 Files???

Database, SQL, .csv, ...

	Feature 1	Feature 2	Feature 3
Antibody 1			
Antibody 2			
Antibody 3			
...			



Prerequisites

- Operating System:
 - Windows
 - (Mac OS)
 - Linux: Ubuntu, Fedora, Debian
- Bash (Terminal) useful and mandatory for this approach
- Alternative Windows batch

Install texlive and get going

- Linux
`$ sudo apt install texlive-full`
- Windows
<https://www.tug.org/texlive/windows.html#install>
- Optional: install a editor i.e. **Texmaker**, VSCode, ...
- Extensive Latex-Kurs for Mobi Studs:
 - Full course
 - Resources and templates (never start from scratch)
 - github.com/lenamessner/LaTeX_course_mobi
- I will add now:
 - Working with Latex in the terminal
 - Literature in jabref and zotero

Get the test files via git/github



- Generally it is highly recommended to use version control when doing latex
- If everything screws up just restore previous working version (especially as a beginner)
- Get used to Git!
 - Clone, init, add, commit, restore, rebase, ...
- Clone training repository:

[git@github.com:fesel2/LatexLiteratureMOBI2022.git](https://github.com/fesel2/LatexLiteratureMOBI2022.git)

Working with the command line

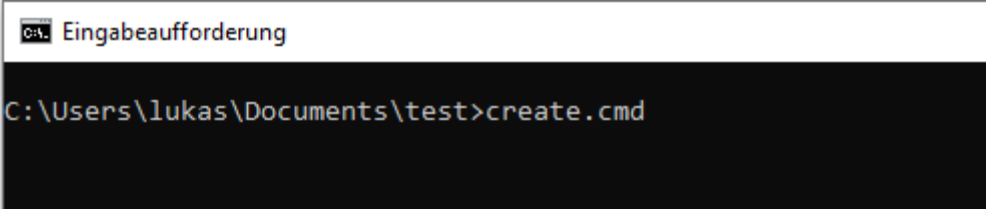
Linux: bash

- <https://www.ionos.de/digitalguide/server/konfiguration/linux-befehle-terminal-kommandos-im-ueberblick/> (important commands)
- Create the file:

```
(base) lukas@Saturn:~/Documents/test$ chmod +x create.sh  
(base) lukas@Saturn:~/Documents/test$ ./create.sh
```

Windows: Batch

- https://www.tutorialspoint.com/batch_script/batch_script_commands.htm (important commands)
- Create the file



```
Eingabeaufforderung  
  
C:\Users\lukas\Documents\test>create.cmd
```

\$ pdflatex name.tex –interaction=nonstopmode

↖ No interaction: to skip minor issues

Hands on:

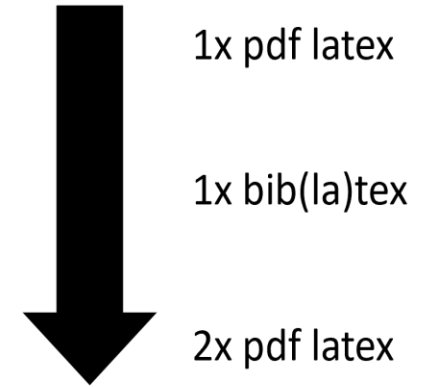
- Clone Repository on your machine
- Run pdflatex in the terminal or create pdf with Texmaker, create your file

Citations in Latex

- Basic Syntax
 - Preamble: `\usepackage[backend=biber, style=ieee, hyperref=true]{biblatex}`
`\addbibresource{literature.bib}`
 - Citation with `\cite{unique_ID}`
 - Print bibliography:
`\printbibliography`
- Pdf LaTeX not capable to cite properly
- Bib LaTeX required
- Pdf LaTeX then needs to rerun twice
- Overcome with script or specific editor (Texmaker)

(Diskussion part in example file)

Eine andere vergleichbare Studie erhält ähnliche Ergebnisse und bestätigt damit die gestellte Hypothese `douglas1900`. Es stimmt somit alles mit der Literatur überein.



Eine andere vergleichbare Studie erhält ähnliche Ergebnisse und bestätigt damit die gestellte Hypothese `[1]`. Es stimmt somit alles mit der Literatur überein.

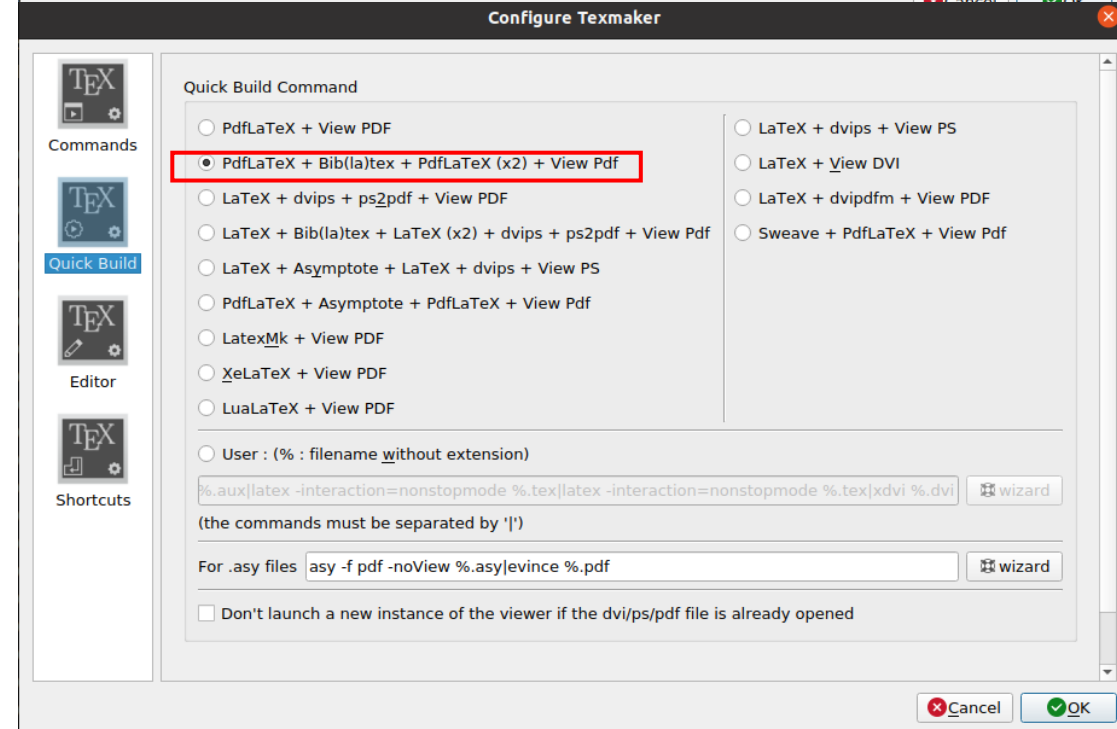
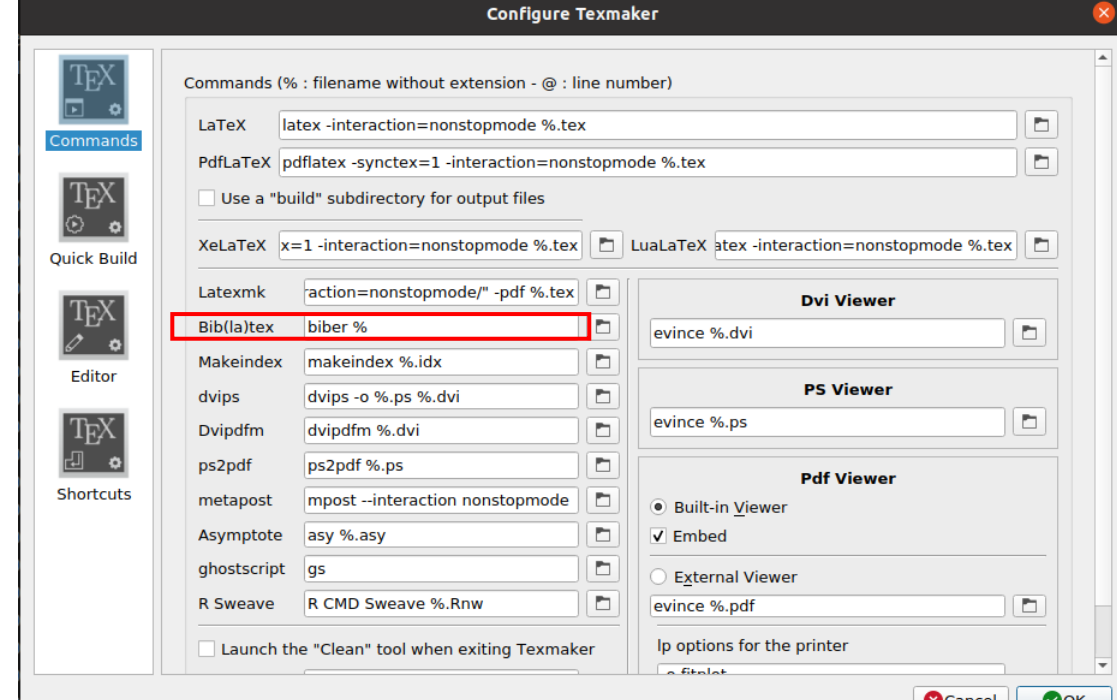
Enabling biber for biblatex

Filename: create.sh

```
1 #!/bin/sh
2
3 OUTPUT_DIR="./temp"
4 RESULT_DIR="./result"
5 FILE="protocol"
6
7 mkdir $OUTPUT_DIR
8 mkdir $RESULT_DIR
9
10
11 pdflatex -output-directory="$OUTPUT_DIR" -synctex=1 -interaction=nonstopmode ${FILE}.tex
12
13 cp literature.bib $OUTPUT_DIR
14
15 cd $OUTPUT_DIR
16 biber ${FILE}
17 makeindex ${FILE}.idx
18
19 cd ..
20
21 pdflatex -output-directory="$OUTPUT_DIR" -synctex=1 -interaction=nonstopmode ${FILE}.tex
22 pdflatex -output-directory="$OUTPUT_DIR" -synctex=2 -interaction=nonstopmode ${FILE}.tex
23
24 cat $OUTPUT_DIR/${FILE}.pdf > $RESULT_DIR/${FILE}.pdf
25
26
```

Hands on:

- Enable biber, use the create script or configure textmaker
- Rerun the texfile and spot the change



Understanding .bib files

```
1 @ARTICLE{douglas1900,  
2     author = {Douglas Knight, Hadschi Ad, Dimitri Gorbatschow},  
3     title = {how to produce a good citation},  
4     journal = {HeidiTECH},  
5     year = 1900,  
6     volume = 156,  
7     pages = 1000,  
8 }  
9
```

-
- Database for citations
 - Text based
 - Each entry has a unique identifier to reference in latex
 - Bib(la)tex looks it up and changes unique identifier accordingly
 - Adds bibliography at the end

Managing .bib files with JabRef

- Very simple, lightweight and portable
- Open source
- Relies on .bib file only
- Java required
- Can import multiple formats
- Downside: No picker/Webextension available
- Download:

<https://www.fosshub.com/JabRef.html>



Enable Structuring in groups

Add/delete entry manually

The screenshot displays the JabRef application window titled "literature.bib - JabRef". The interface includes a menu bar (File, Edit, Library, Quality, Lookup, Tools, View, Options, Help) and a toolbar with icons for adding, deleting, and editing entries. A blue arrow points to the "Groups" sidebar on the left, which contains a "Filter groups" search bar and a list of groups, including "All entries" with a count of 1. Another blue arrow points to the toolbar icon for adding a new entry. The main area shows a table of entries with columns: Entry type, Author/Editor, Title, Year, and Journal/Booktitle. The first entry is highlighted in blue. A third blue arrow points to this entry. Below the table, a green-bordered box shows the detailed view of the selected entry, "Article (douglas1900)". This view includes fields for Author, Title, Journal, Year, and Citationkey, along with a "Generate" button. A fourth blue arrow points to this detailed view. The bottom of the window features a "Web search" section with a dropdown menu set to "ACM Portal" and a search bar.

Entry type	Author/Editor	Title	Year	Journal/Booktitle
Article	Knight et al.	how to produce a good citation	1900	HeidiTECH

Article (douglas1900)

Author: Douglas Knight, Hadschi Ad, Dimitri Gorbatschow

Title: how to produce a good citation

Journal: HeidiTECH

Year: 1900

Citationkey: douglas1900

Generate

Article (douglas1900)

Knight, Douglas / Ad, Hadschi / Gorbatschow, Dimitri
how to produce a good citation
1900

HeidiTECH, Vol. 156
p. 1000

Your .bib file, displayed in more readable form

Edit a bibtex entry

Save

Email

Send to

Display options ⚙

> J Med Virol. 2021 Mar;93(3):1748-1751. doi: 10.1002/jmv.26446. Epub 2020 Sep 29.

Behavioral manipulation-key to the successful global spread of the new coronavirus SARS-CoV-2?

Jaouad Bouayed¹, Torsten Bohn²

Affiliations + expand

PMID: 32813286 PMCID: PMC7461034 DOI: 10.1002/jmv.26446

Free PMC article

Abstract

Human-severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) interaction can have an array of various outcomes-it could be mortal, morbid or merely carrying minor health consequences. The very rapid global spread has raised the issue whether there are further multi-dimensional consequences of SARS-CoV-2 infection on human behavior, the key of its transmission. During the coronavirus crisis, odd, abnormal, and irresponsible behavior has been reported in coronavirus disease 2019 (COVID-19) individuals, particularly in super-spreaders, that is, persons with a high viral load, thus constituting also super-emitters. In this perspective, we highlight the role of behavioral changes in the spread of SARS-CoV-2. We discuss the impact of confinement orders, intentionally disseminating false information, or even deliberately sneezing, spitting, or coughing, as well as the role of other pathogens, such as rabies and even influenza, in the spread of SARS-CoV-2. In this perspective, we highlight the role of behavioral changes in the spread of SARS-CoV-2. We discuss the impact of confinement orders, intentionally disseminating false information, or even deliberately sneezing, spitting, or coughing, as well as the role of other pathogens, such as rabies and even influenza, in the spread of SARS-CoV-2.

Keywords: CNS-changes; COVID-19; and behavioral changes.

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Conflict of interest statement

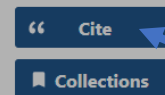
The authors declare that there are no conflicts of interest.

Figures

FULL TEXT LINKS



ACTIONS



SHARE



PAGE NAVIGATION

< Title & authors

Abstract

Conflict of interest statement

Figures

Similar articles

Cited by

References

MeSH terms

CITE

Bouayed J, Bohn T. Behavioral manipulation-key to the successful global spread of the new coronavirus SARS-CoV-2? J Med Virol. 2021 Mar;93(3):1748-1751. doi: 10.1002/jmv.26446. Epub 2020 Sep 29. PMID: 32813286; PMCID: PMC7461034.

Copy

Download .nbib

Format: NLM

Download a citation from the Web

Add
downloaded
citation



literature.bib – JabRef

File Edit Library Quality Lookup Tools View Options Help

New library
Open library Ctrl+O
Recent libraries
Save library Ctrl+S
Save library as... Ctrl+Shift+S
Save all Ctrl+Alt+S
Import
Export
Shared database
Close Ctrl+W
Quit Ctrl+Q

Import into current library Ctrl+I
Import into new library Ctrl+Alt+I

Entry...	Author/Editor	Title	Year	Journal/Booktitle
Article	Knight et al.	how to produce a good citation	1900	HeidiTECH

Required fields Optional fields General Abstract Comments Related articles BibTeX source LaTeX Citations

Article (douglas1900)

Author Douglas Knight, Hadschi Ad, Dimitri Gorbatschow

Title how to produce a good citation

Journal HeidiTECH

Year 1900

Citationkey douglas1900

Generate

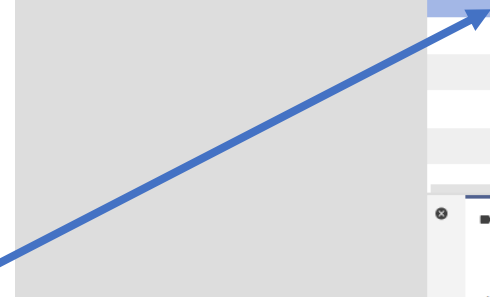
Web search

ACM Portal

Search...

Search

Successful
import



literature.bib – JabRef

File Edit Library Quality Lookup Tools View Options Help

Search...

Groups

Filter groups

- All entries 2

Entry...	Author/Editor	Title	Year	Journal/Booktitle
Article	Knight et al.	how to produce a good citation	1900	HeidiTECH
Article	Bouayed and Bohn	Behavioral manipulation-key to the successful global spread of the new coronavir...	2021	Journal of medica...

Article

Required fields Optional fields Other fields General Abstract Comments Related articles BibTeX source LaTeX Citations

Author: Bouayed, Jaouad and Bohn, Torsten

Title: Behavioral manipulation-key to the successful global spread of the new coronavirus

Journal: Journal of medical virology

Year: 2021

Citationkey: Bouayed2021

Article (Bouayed2021)

Bouayed, Jaouad / Bohn, Torsten
Behavioral manipulation-key to the successful global spread of the new coronavirus SARS-CoV-2?
2021-03

Journal of medical virology , Vol. 93 : United States
p. 1748-1751

Abstract: Human-severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) interaction can have an array of various outcomes-it could be mortal, morbid or merely carrying minor health consequences. The very rapid global spread has raised the issue whether there are further multi-dimensional consequences of SARS-CoV-2 infection on human behavior, the key of its transmission. During the coronavirus crisis, odd, abnormal, and irresponsible behavior has been reported in coronavirus disease 2019 (COVID-19) individuals, particularly in super-spreaders, that is, persons with a high viral load, thus constituting also super-emitters. Indeed, cases of infected persons ignoring self-confinement orders, intentionally disregarding physical distancing and multiplying social interactions, or even deliberately sneezing, spitting or coughing were reported. While it is known that some other viruses, such as rabies and even influenza do change human behavior, this remains unclear for SARS-CoV-2. In this perspective, we highlight the possibility that COVID-19 is facilitated by altered human social behavior that benefits SARS-CoV-2 transmission, through showcasing similar virus-induced changed

Underlying .bib file is
automatically updated and
can be further used in LaTeX



```
literature - Editor
Datei Bearbeiten Format Ansicht Hilfe
@ARTICLE{douglas1900,
  author = {Douglas Knight, Hadschi Ad, Dimitri Gorbatschow},
  title = {how to produce a good citation},
  journal = {HeidiTECH},
  year = 1900,
  volume = 156,
  pages = 1000,
}

@Article{Bouayed2021,
  author = {Bouayed, Jaouad and Bohn, Torsten},
  journal = {Journal of medical virology},
  title = {Behavioral manipulation-key to the successful global spread of the new coronavirus SARS-CoV-2?},
  year = {2021},
  month = {Mar},
  pages = {1748-1751},
  volume = {93},
  electronic-issn = {1096-9071},
  linking-issn = {0146-6615},
  print-issn = {0146-6615},
  abstract = {Human-severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) interaction can have an array of various outcomes-it could be mortal, morbid or
  pective, we highlight the possibility that COVID-19 is facilitated by altered human social behavior that benefits SARS-CoV-2 transmission, through showcasing similar virus-ind
  address = {United States},
  article-doi = {10.1002/jmv.26446},
  article-pii = {JMV26446},
  completed = {20210310},
  electronic-publication = {20200929},
  history = {2020/08/20 06:00 [exported]}
```

Hands on:

- Download and install JabRef, note that there is a Windows security warning
- Add one entry manually and one entry from the web (Pubmed)
- Cite new entry in your .tex file
- Rerun Latex successfully

Managing Literature with Zotero

- Advanced
- Similar to citavi
- Open source
- Comes with a picker tool (Web extension)
- Does not rely on a .bib file as database
→ changes do not directly sync with latex
- An custom plugin can be used to automatically update an exported .bib file to overcome this limitation
- Download: <https://www.zotero.org/download/>



Enable
Structuring
in
groups

Meine Bibliothek - Zotero

Datei Bearbeiten Ansicht Werkzeuge Hilfe

Meine Bibliothek

- Meine Publikationen
- Eintragsdubletten
- Einträge ohne Sammlung
- Papierkorb

Titel

Behavioral manipulation-key to the successful global spread of the new coronavirus SARS-CoV-2	Bouayed und Bohn
how to produce a good citation	Douglas Knight

Ersteller

Infos Notizen Tags Zugehörig

Eintragsart Zeitschriftenartikel

Titel Behavioral manipulation-key to the successful global spread of the new coronavirus SARS-CoV-2?

Autor Bouayed, Jaouad

Autor Bohn, Torsten

Zusammenfassung Human-severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) interaction can have an array of various outcomes-it could be mortal, morbid or merely carrying minor health consequences. The very rapid global spread has raised the issue whether there are further multi-dimensional consequences of SARS-CoV-2 infection on human behavior, the key of its transmission. During the coronavirus crisis, odd, abnormal, and irresponsible behavior has been reported in coronavirus disease 2019 (COVID-19) individuals, particularly in super-spreaders, that is, persons with a high viral load, thus constituting also super-emitters. Indeed, cases of infected persons ignoring self-confinement orders, intentionally disregarding physical distancing and multiplying social interactions, or even deliberately sneezing, spitting or coughing were reported. While it is known that some other viruses, such as rabies and even influenza do change human behavior, this remains unclear for SARS-CoV-2. In this perspective, we highlight the possibility that COVID-19 is facilitated by altered human social behavior that benefits SARS-CoV-2 transmission, through showcasing similar virus-induced changed behavior by other pathogens and relating this to reports from the gray literature.

Publikation Journal of medical virology

Band 93

Ausgabe 3

Seiten 1748-1751

Datum 2021-03

*Dangerous Behavior *Social Behavior

abnormal behavior Behavior Control

brain-immune axis CNS-changes

COVID-19

COVID-19/*psychology/*transmission

Disease Hotspot Humans


obligate parasites Physical Distancing

Your .bib file,
displayed in
more readable
form

Edit a bibtex
entry

Get the citation into
Zotero with one click

Similar to citavi picker
(commercial
literature program)



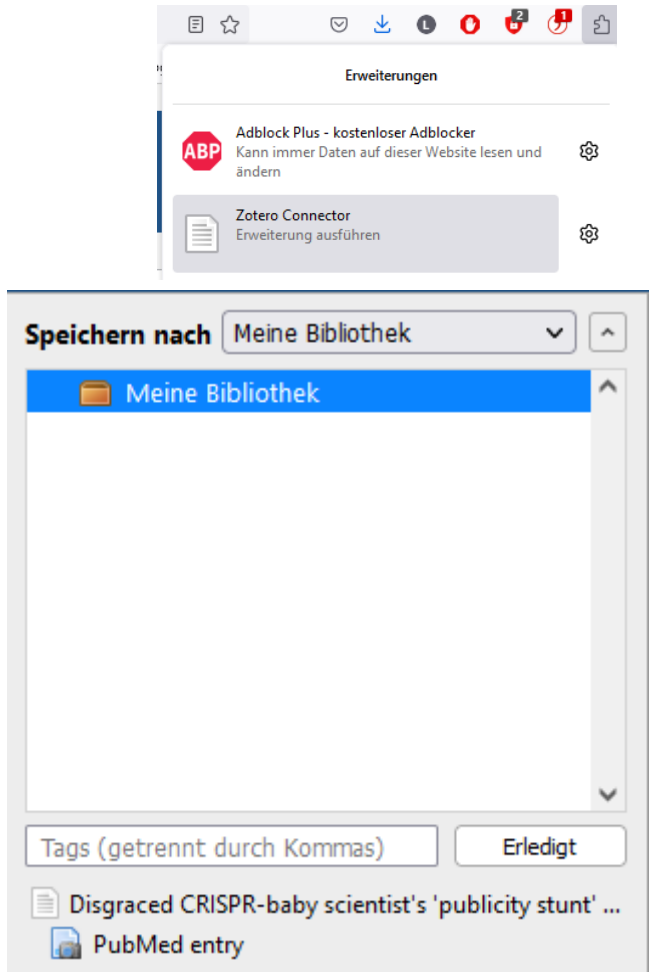
Zotero Connector

Save to Zotero from your browser

[Install Firefox Connector](#)

Zotero Connectors automatically sense content as you browse the web and allow you to save it to Zotero with a single click.

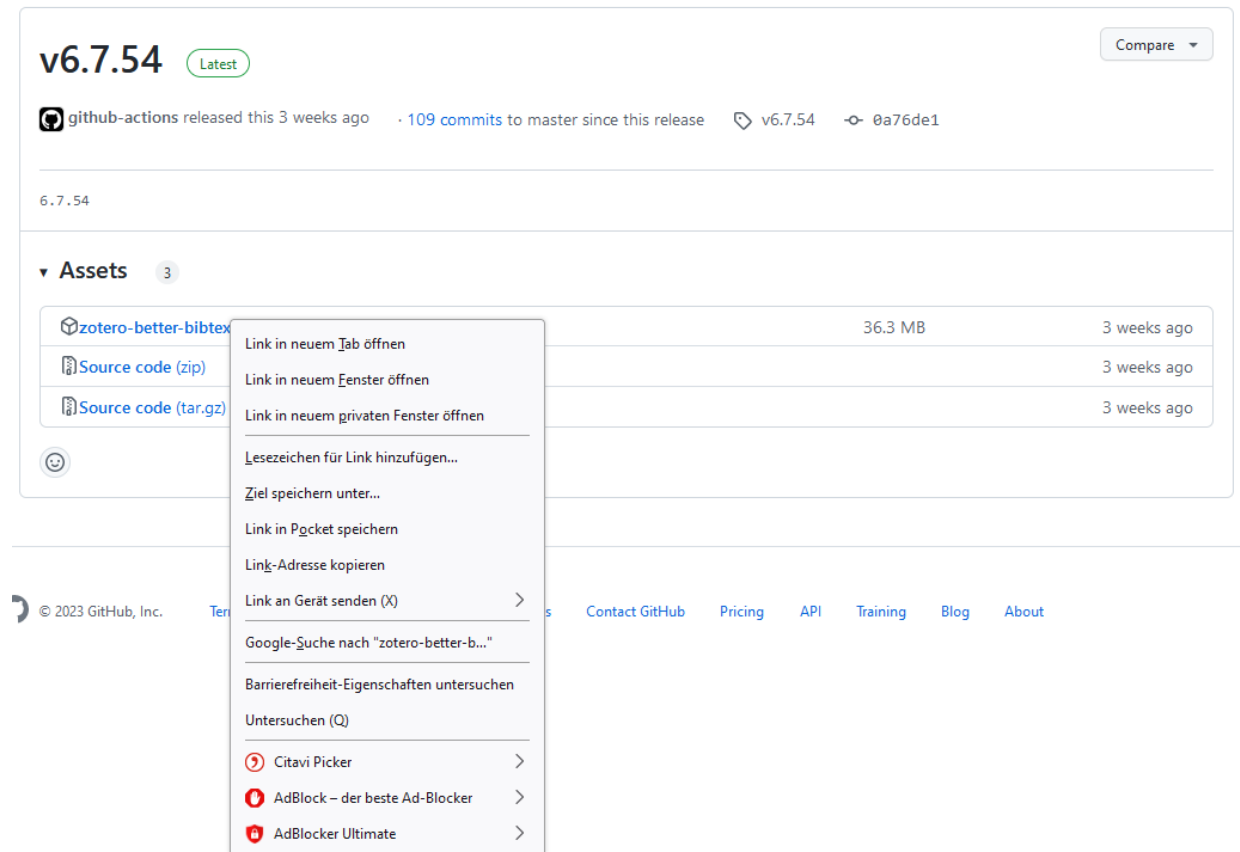
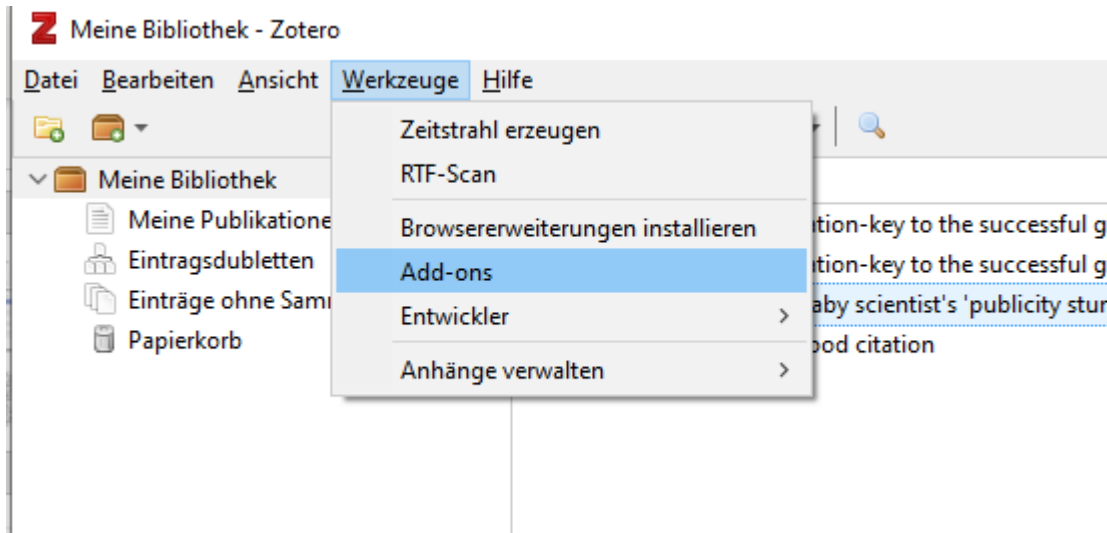
[Zotero Connectors for other browsers](#)

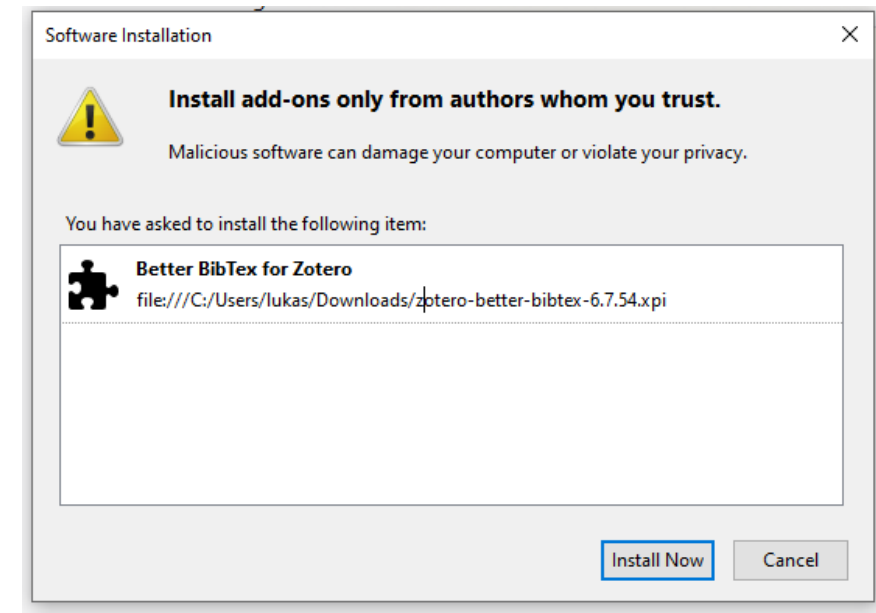
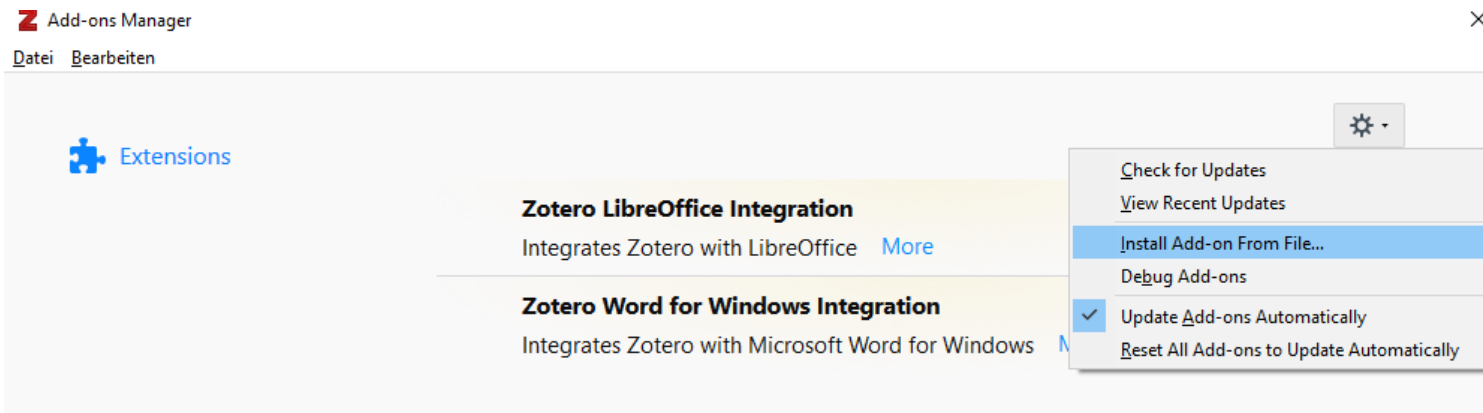


The screenshot shows the Zotero Connector interface within a browser window. The browser's extension menu is open, showing 'Adblock Plus - kostenloser Adblocker' and 'Zotero Connector'. The Zotero Connector interface is displayed below, featuring a 'Speichern nach' (Save to) dropdown menu set to 'Meine Bibliothek'. A list of saved items is shown, including 'Disgraced CRISPR-baby scientist's 'publicity stunt' ...' and 'PubMed entry'. The interface also includes a 'Tags (getrennt durch Kommas)' field and an 'Erledigt' (Completed) button.

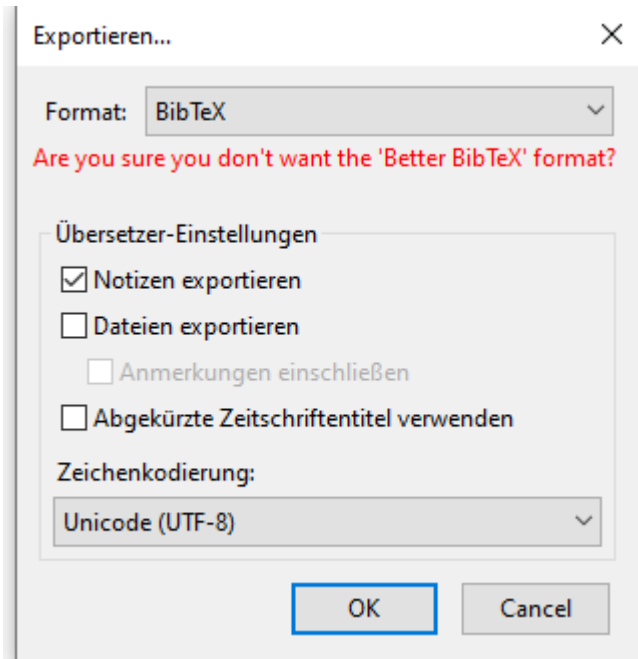
Better BibTeX Plugin for LaTeX

- Download:
<https://github.com/retorquere/zotero-better-bibtex/releases/tag/v6.7.54>

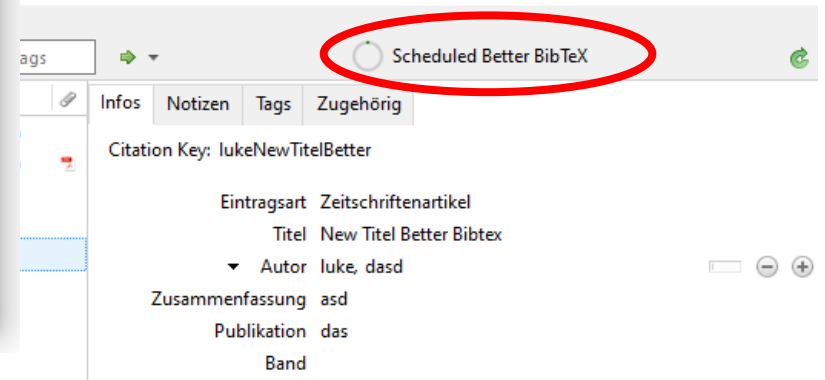
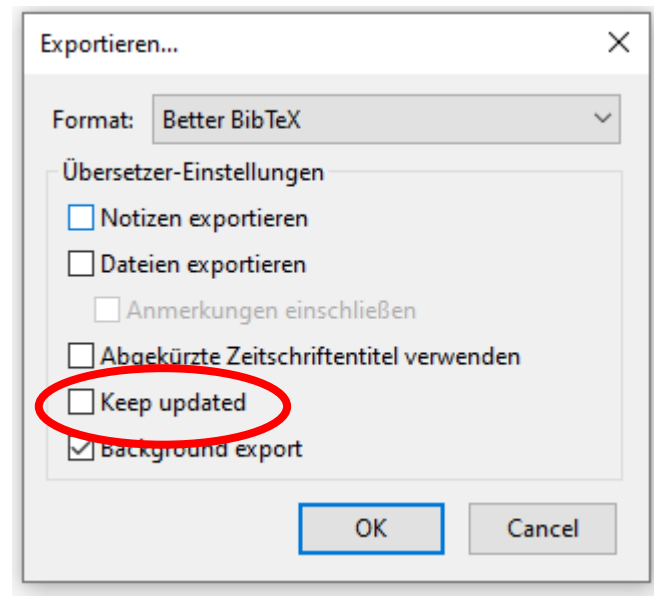




Normal:



Upgraded:



Hands on

- Install Zotero and Zotero Web Plugin
- Install Better Bibtex Addon
- Use the Web Plugin to quickly save a citation in your Zotero Project
- Export a Better Bibtex File
- Integrate it in Latex
- Make a change within Zotero Project (like a Author Name)

You've
learned:



- When not to use Overleaf
- How to use latex in the terminal
- to use citations in latex
- Using JabRef
- Using Zotero
- Adding customizable add ons
- Open Source gets the job done without paying a dime. Do you really want to pay annually after finishing studies?
 - 126€ for MS Office
 - 255€ for Citavi
- 145€ for Windows Home