

THE SCOOP PREPARE BIB_TE_X FILE TOOL

ROLAND HERZOG

ABSTRACT. This document describes the SCOOP PREPARE BIB_TE_X FILE tool (version 1.4.2).

CONTENTS

1. Introduction	2
2. Commands	3
3. Unconditional Transcriptions	4
3.1. Upper-Case Character Protection	4
3.2. DATE Field	4
3.3. LOCATION Field	5
3.4. JOURNALTITLE Field	5
3.5. ORGANIZATION Field	5
3.6. SUBTITLE Field	5
3.7. @REPORT Entries	6
3.8. @COLLECTION Entries	6
3.9. Bachelor @THESIS	7
3.10. Master @THESIS	7
3.11. Ph.D. @THESIS	7
3.12. Habilitation @THESIS	8
4. Command Line Options	8
4.1. Options Related to Specific Entry Types	8
4.2. Options Related to EPRINT fields	9
4.3. Options Related to the DOI Field	11
4.4. Options Related to the URL Field	12
4.5. Options Related to Author Names	13

1. INTRODUCTION

The bibliography of L^AT_EX documents is often obtained by having `bibtex` process a BIB_TE_X (`.bib`) file. The appearance of the bibliography is then determined by the BIB_TE_X style `.bst` file selected via a `\bibliographystyle` command.

Commonly used `.bst` files, notably those distributed for publications in scientific journals, come with varying features and limitations. For instance, the support of `@ONLINE` entries, which are not among the BIB_TE_X standard entry types¹ but are defined in the BIB_LA_TE_X standard², varies across `.bst` files.

The SCOOP PREPARE BIB_TE_X FILE tool (`spbf`) is meant to produce `.bib` files which are customized to be processed by `bibtex` with a `.bst` file with known limitations. In particular, it allows users to maintain their `.bib` files in the modern BIB_LA_TE_X standard and produce downgraded `.bib` files on demand, which are compatible with `bibtex` processing and compliant with the features of a particular `.bst` file.

The `spbf` tool is used internally by the SCOOP TEMPLATE ENGINE (`ste`)³, but it may also be used independently. To produce a customized BIB_TE_X file, `spbf convert` performs three steps.

- (1) First, it runs

```
biber --bblsafechars --output-format=bibtex
```

on the input file, which takes care of recoding any UTF8 characters present in the input into L^AT_EX accented characters, e. g., the German umlaut `ä` becomes `\"a` etc.

- (2) Second, it applies a couple of transcription rules, whose primary purpose is to downgrade entries using BIB_LA_TE_X features to BIB_TE_X compatible features. For instance, the fields `TITLE`, `SUBTITLE` and `BOOKTITLE`, whose contents are likely to be converted to lower case by many `.bst` files, are protected by curly braces. Entry types such as `@THESIS` will be transcribed into BIB_TE_X types, etc. These unconditional transcriptions are described in [Section 3](#).

- (3) Third, it applies a couple of additional transcription rules depending on the command line options given. For instance,

¹<https://en.wikipedia.org/wiki/BibTeX>

²<https://mirrors.ctan.org/info/biblatex-cheatsheet/biblatex-cheatsheet.pdf>

³<https://gitlab.com/scoopgroup-public/scoop-template-engine>

```
spbf convert --arxivtotypeornote ...
```

would transcribe the entry

```
@ARTICLE{...,
  ... = {...},
  EPRINT = {1804.06214},
  EPRINTTYPE = {arXiv},
}
```

into

```
@ARTICLE{...,
  ... = {...},
  NOTE = {{arXiv}: \href{https://arxiv.org/abs/
    1804.06214}{1804.06214}},
}
```

This example of a transcription can be useful since the *EPRINT* and *EPRINTTYPE* entries are not BIB_TE_X standard entry types⁴ and thus are not honored by some .bst files.

A description of the command line options to customize the behavior of `spbf convert` is given in [Section 4](#).

`spbf convert` takes as input either

- a BIB_TE_X or BIB_LA_TE_X (.bib) file (database mode),
- or a BIB_LA_TE_X control (.bcf) file (document mode).

In document mode, your system's `biber` command must be version 2.10 or higher.

2. COMMANDS

The SCOOP PREPARE BIB_TE_X FILE tool offers the following functions. The commands

```
spbf help
spbf doc
spbf version
```

should be self-explanatory. The main functionality is

⁴<https://en.wikipedia.org/wiki/BibTeX>

```
spbf convert [options] infile [outfile]
```

whose operation is described in the remainder of this document.

3. UNCONDITIONAL TRANSCRIPTIONS

`spbf convert` first carries out a number of transcriptions independently of which command line `[options]` are given. These are meant primarily to allow users to make use of $\text{BIB}\text{\LaTeX}$ features in their input `.bib` files and use `spbf convert` to downgrade those to features to standard $\text{BIB}\text{\LaTeX}$ entry types.⁵ The transcriptions are carried out in the order they are described below.

3.1. Upper-Case Character Protection. `spbf convert` protects the fields `TITLE`, `SUBTITLE` and `BOOKTITLE` by curly braces. For instance, an entry

```
@...{...,
  TITLE = {Intrinsic formulation of KKT conditions and
           constraint qualifications on smooth manifolds},
}
```

is transcribed into⁶

```
@...{...,
  TITLE = {{Intrinsic formulation of KKT conditions and
            constraint qualifications on smooth manifolds}},
}
```

3.2. DATE Field. `spbf convert` transcribes the `DATE` field into a `YEAR` field. For instance, an entry

```
@...{...,
  DATE = {2012-12},
}
```

is transcribed into

```
@...{...,
  YEAR = {2012},
}
```

⁵<https://en.wikipedia.org/wiki/BibTeX>

⁶Protecting the entire field is simpler compared to protecting only terms containing upper-case letters since mathematical expressions would need to be protected as well.

3.3. LOCATION Field. `spbf convert` transcribes the `LOCATION` field into a `ADDRESS` field. For instance, an entry

```
@...{...,  
  LOCATION = {Berlin, Heidelberg},  
}
```

is transcribed into

```
@...{...,  
  ADDRESS = {Berlin, Heidelberg},  
}
```

3.4. JOURNALTITLE Field. `spbf convert` transcribes the `JOURNALTITLE` field into a `JOURNAL` field. For instance, an entry

```
@...{...,  
  JOURNALTITLE = {SIAM Journal on Optimization},  
}
```

is transcribed into

```
@...{...,  
  JOURNAL = {SIAM Journal on Optimization},  
}
```

3.5. ORGANIZATION Field. `spbf convert` transcribes the `ORGANIZATION` field into a `PUBLISHER` field. For instance, an entry

```
@...{...,  
  ORGANIZATION = {IEEE},  
}
```

is transcribed into

```
@...{...,  
  PUBLISHER = {IEEE},  
}
```

3.6. SUBTITLE Field. `spbf convert` appends the contents of the `SUBTITLE` field to the `TITLE` field. For instance, an entry

```
@...{...,
  TITLE = {Infinite Dimensional Analysis},
  SUBTITLE = {A Hitchhiker's Guide},
}
```

is transcribed into

```
@...{...,
  TITLE = {Infinite Dimensional Analysis.
    A Hitchhiker's Guide},
}
```

3.7. **@REPORT Entries.** `spbf convert` transcribes entries of type `@REPORT` into entries of type `@TECHREPORT`. If applicable, it also converts the `TYPE` field: if the `TYPE` field equals `{techreport}`, it will be transcribed into `{{T}echnical report}`. For instance, an entry

```
@REPORT{...,
  ... = {...},
  TYPE = {techreport},
}
```

is transcribed into

```
@TECHREPORT{...,
  ... = {...},
  TYPE = {{T}echnical report},
}
```

3.8. **@COLLECTION Entries.** `spbf convert` transcribes entries of type `@COLLECTION` into entries of type `@BOOK`. For instance, an entry

```
@COLLECTION{...,
  ... = {...},
}
```

is transcribed into

```
@BOOK{...,
  ... = {...},
}
```

3.9. **Bachelor @THESIS.** `spbf convert` transcribes entries of type `@THESIS` with a `TYPE = {Bachelor thesis}` field into entries of type `@MASTERTHESIS` with a field `TYPE = {{B}achelor thesis}`. In this case, it also replaces an `INSTITUTION` field by a `SCHOOL` field. For instance, an entry

```
@THESIS{...,
  ... = {...},
  INSTITUTION = {Heidelberg University},
  TYPE = {Bachelor thesis},
}
```

is transcribed into

```
@MASTERTHESIS{...,
  ... = {...},
  SCHOOL = {Heidelberg University},
  TYPE = {{B}achelor thesis},
}
```

3.10. **Master @THESIS.** `spbf convert` transcribes entries of type `@THESIS` with a `TYPE = {mathesis}` field into entries of type `@MASTERTHESIS` with a field `TYPE = {{M}aster thesis}`. In this case, it also replaces an `INSTITUTION` field by a `SCHOOL` field. For instance, an entry

```
@THESIS{...,
  ... = {...},
  INSTITUTION = {Heidelberg University},
  TYPE = {mathesis},
}
```

is transcribed into

```
@MASTERTHESIS{...,
  ... = {...},
  SCHOOL = {Heidelberg University},
  TYPE = {{M}aster thesis},
}
```

3.11. **Ph.D. @THESIS.** `spbf convert` transcribes entries of type `@THESIS` with a `TYPE = {phdthesis}` field into entries of type `@PHDTHESIS` with a field `TYPE = {{P}h.{D}. thesis}`. In this case, it also replaces an `INSTITUTION` field by a `SCHOOL` field. For instance, an entry

```
@THESIS{...,
  ... = {...},
  INSTITUTION = {Heidelberg University},
  TYPE = {phdthesis},
}
```

is transcribed into

```
@PHDTHESIS{...,
  ... = {...},
  SCHOOL = {Heidelberg University},
  TYPE = {{P}h.{D}. thesis},
}
```

3.12. **Habilitation** `@THESIS`. `spbf convert` transcribes entries of type `@THESIS` with a `TYPE = {Habilitation thesis}` field into entries of type `@PHDTHESIS` with a field `TYPE = {{H}abilitation thesis}`. In this case, it also replaces an `INSTITUTION` field by a `SCHOOL` field. For instance, an entry

```
@THESIS{...,
  ... = {...},
  INSTITUTION = {Heidelberg University},
  TYPE = {Habilitation thesis},
}
```

is transcribed into

```
@PHDTHESIS{...,
  ... = {...},
  SCHOOL = {Heidelberg University},
  TYPE = {{H}abilitation thesis},
}
```

4. COMMAND LINE OPTIONS

Following the conversions described in [Section 3](#), `spbf convert` carries out a number of additional transcriptions depending on the command line options given.

4.1. Options Related to Specific Entry Types.

4.1.1. *--onlinetotechreport*. The *--onlinetotechreport* option is meant to create a .bib file for processing in documents whose .bst file does not properly render @ONLINE entry types. It causes @ONLINE to be replaced by @TECHREPORT.

4.2. Options Related to EPRINT fields.

4.2.1. *--arxivtotypeornote*. The *--arxivtotypeornote* option is meant to create a .bib file for processing in documents whose .bst file does not honor

```
@...{...,
  EPRINTTYPE = {arXiv},
}
```

fields. It causes entries of type @TECHREPORT

```
@TECHREPORT{...,
  ... = {...},
  EPRINT = {1804.06214},
  EPRINTTYPE = {arXiv},
}
```

to be transcribed according to

```
@TECHREPORT{...,
  ... = {...},
  TYPE = {{arXiv}: \href{https://arxiv.org/abs/
    1804.06214}{1804.06214}},
}
```

and entries of all other types

```
@...{...,
  ... = {...},
  EPRINT = {1804.06214},
  EPRINTTYPE = {arXiv},
}
```

to be transcribed according to

```
@...{...,
  ... = {...},
  NOTE = {{arXiv}: \href{https://arxiv.org/abs/
    1804.06214}{1804.06214}},
}
```

4.2.2. *--haltotypeornote*. The *--haltotypeornote* option is meant to create a *.bib* file for processing in documents whose *.bst* file does not honor

```
@...{...,
  EPRINTTYPE = {HAL},
}
```

fields. It causes entries of type *@TECHREPORT*

```
@TECHREPORT{...,
  ... = {...},
  EPRINT = {hal-01686770},
  EPRINTTYPE = {HAL},
}
```

to be transcribed according to

```
@TECHREPORT{...,
  ... = {...},
  TYPE = {{HAL}: \href{https://hal.archives-ouvertes.fr/
    hal-01686770}{hal-01686770}},
}
```

and entries of all other types

```
@...{...,
  ... = {...},
  EPRINT = {hal-01686770},
  EPRINTTYPE = {HAL},
}
```

to be transcribed according to

```
@...{...,
  ... = {...},
  NOTE = {{HAL}: \href{https://hal.archives-ouvertes.fr/
    hal-01686770}{hal-01686770}},
}
```

4.2.3. *--urntonote*. The *--urntonote* option is meant to create a *.bib* file for processing in documents whose *.bst* file does not honor

```
@...{...,
  EPRINTTYPE = {urn},
}
```

fields. It causes entries of all types

```
@...{...,
  ... = {...},
  EPRINT = {urn},
  EPRINTTYPE = {urn:nbn:de:bsz:ch1-qucosa-227446},
}
```

to be transcribed according to

```
@...{...,
  ... = {...},
  NOTE = {{URN}: \href{https://www.nbn-resolving.de/
    urn:nbn:de:bsz:ch1-qucosa-227446}
    {urn:nbn:de:bsz:ch1-qucosa-227446}}},
}
```

4.3. Options Related to the DOI Field.

4.3.1. `--doitourl`. The `--doitourl` option is meant to create a `.bib` file for processing in documents whose `.bst` file does not honor

```
@...{...,
  DOI = {...},
}
```

fields but which do honor

```
@...{...,
  URL = {...},
}
```

fields. It causes entries of all types

```
@...{...,
  ... = {...},
  DOI = {10.1137/18M1181602},
}
```

to be transcribed according to

```
@...{...,
  ... = {...},
  URL = {https://doi.org/10.1137/18M1181602},
}
```

4.3.2. *--doitonote*. The *--doitonote* option is meant to create a .bib file for processing in documents whose .bst file does not honor

```
@...{...,
  DOI = {...},
}
```

fields nor

```
@...{...,
  URL = {...},
}
```

fields (hence *--doitourl* is not helpful). It causes entries of all types

```
@...{...,
  ... = {...},
  DOI = {10.1137/18M1181602},
}
```

to be transcribed according to

```
@...{...,
  ... = {...},
  NOTE = {{DOI} \href{https://doi.org/10.1137/18M1181602}
    {10.1137/18M1181602}},
}
```

4.4. Options Related to the URL Field.

4.4.1. *--urltonote*. The *--urltonote* option is meant to create a .bib file for processing in documents whose .bst file does not honor

```
@...{...,
  URL = {...},
}
```

fields. It causes entries of all types

```
@...{...,
  ... = {...},
  URL = {http://www.optpde.net/},
}
```

to be transcribed according to

```
@...{...,
  ... = {...},
  NOTE = {\url{http://www.optpde.net/}},
}
```

4.5. Options Related to Author Names.

4.5.1. *--giveninits*. Most but not all .bst files abbreviate authors' and editors' given names. This option is meant to create a .bib file for processing in documents whose .bst file does not abbreviate given names, particularly in the case that your .bib file may have some entries with abbreviated given names and other entries with complete given names. This option causes entries of all types

```
@...{...,
  AUTHOR = {Hoffmann, Karl-Heinz},
}
```

to be transcribed according to

```
@...{...,
  AUTHOR = {Hoffmann, K.-H.},
}
```

and entries of all types

```
@...{...,
  EDITOR = {Hoffmann, Karl-Heinz},
}
```

to be transcribed according to

```
@...{...,
  EDITOR = {Hoffmann, K.-H.},
}
```

4.5.2. *--protectfamilynames*. Some .bst files do not correctly handle multi-part author and editor family names. This option causes entries of all types

```
@...{...,  
  AUTHOR = {Hoffmann, Karl-Heinz},  
}
```

to be transcribed according to

```
@...{...,  
  AUTHOR = {{Hoffmann}, K.-H.},  
}
```

and entries of all types

```
@...{...,  
  EDITOR = {Hoffmann, Karl-Heinz},  
}
```

to be transcribed according to

```
@...{...,  
  EDITOR = {{Hoffmann}, K.-H.},  
}
```

(R. Herzog) INTERDISCIPLINARY CENTER FOR SCIENTIFIC COMPUTING, HEIDELBERG
UNIVERSITY, 69120 HEIDELBERG, GERMANY

Email address: roland.herzog@iwr.uni-heidelberg.de