



# bibcop: L<sup>A</sup>T<sub>E</sub>X Package for Style Checking of .bib Files\*

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**NB!** You must run T<sub>E</sub>X processor with `--shell-escape` option and you must have [Perl](#) installed. This package doesn't work on Windows.

## 1 Introduction

This package scans a .bib file for style errors and emits warning messages if any issues are found (the package must be included before all other bibliography related packages):

```
\documentclass{article}
\usepackage{bibcop}
\begin{document}
\bibliographystyle{plain}
\bibliography{main}
\end{document}
```

Some warnings may be printed in the T<sub>E</sub>X log. Once the issues in the main.bib file are fixed, the warnings disappear.

Bibcop doesn't pay much attention the formatting of the .bib file. It doesn't emit warnings if a comma is missed after the last tag in a BibT<sub>E</sub>X entry or the tags and their equation symbols are not aligned. Instead, Bibcop is focused on the content of the tags and their possible inconsistencies.

If the .sty file is used directly (without installing it into the T<sub>E</sub>X tree), the bibcop.pl file must also be placed next to it — it is the Perl script that does all the work of checking your .bib files. The .sty is just a simple wrapper around it.

The `\usepackage{bibcop}` must stay right after `\usepackage{biblatex}` (if BibT<sub>E</sub>X is used), otherwise there won't be any warnings from bibcop.

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\*The sources are in GitHub at [yegor256/bibcop](https://github.com/yegor256/bibcop)

## 2 Package Options

It's possible to configure the behavior of the package with the help of a few package options:

**verbose** The `verbose` package option prints all debugging messages to the  $\TeX$  log:

```
\usepackage[verbose]{bibcop}
```

**script** The package depends on the `bibcop.pl` file, which is a Perl script that does all the work. This file is supposed to be located either in the current directory or in the `texmf-dist/scripts/bibcop/` directory. Using the `script` option the location of the script may be explicitly defined (it is not recommended to use this option unless there is a special demand for it):

```
\usepackage[script=my-perl-script.pl]{bibcop}
```

## 3 The Rules

This is a more or less complete list of rules enforced on a `.bib` file:

**types** Only `@article`, `@book`, `@inproceedings`, and `@misc` types of  $\text{Bib}\TeX$  entries are allowed. Everything else, like `@manual`, `@phdthesis`, and many others are simply prohibited. The mentioned four should be enough for everything.

**tags** There are pretty limited lists of allowed tags for each type of  $\text{Bib}\TeX$  entry. The tags that are not in the list are prohibited to use.

**doi** Every  $\text{Bib}\TeX$  entry must have the `doi` tag, which is a unique [Digital Object Identifier](#) of the material that you reference. It seems to be a good practice, in order to avoid ambiguity, to always mention the DOI. It also recommended to use the [doi](#) package, in order to make all “`doi`” fields turned into hyper links.

**caps** In the `title`, `booktitle`, and `journal` tags, all major words must be capitalized, as it is [recommended](#) by APA:

```
title = {A Preliminary Architecture for a Basic Data-Flow Processor}
```

Here, the leading “A” is capital because it opens the title. The word “for” and the article “a” are minor words, that’s why they are in lower case. Both parts of the composite word “Data-Flow” are capitalized. Sometimes this rule may need to be violated, when there is custom capitalization, as it is done by the author of the paper. In order to do this, the words with custom capitalization must be wrapped in curled brackets, for example:

```
title = {Structured Programming {with} Go {To} Statements}
```

**author** The `author` must contain a list of authors separated by “and”. Each author must have two parts separated by a comma. The first part is the last name of the author, the second part is a list of their first names separated by a space, for example:

```
author = {Knuth, Donald E. and Duane, Bibby}
```

When the list of authors is too long, it’s possible to say “and others”:

```
author = {Knuth, Donald E. and others}
```

When first names are shortened to a single letter, it has to have a tailing dot. A specially pronounced author may be wrapped it in curled brackets, to make `Bibcop` ignore it:

```
author = {{Some author} and {I}}
```

- shorts** It is not allowed to shorten any words aside from the author tag, for example this is illegal:
- ```
journal = {J. Log. Comput.}
```
- This must be replaced with the following:
- ```
journal = {Journal of Logic and Computation}
```
- brackets** The title, booktitle, and journal must be wrapped in double brackets, for example:
- ```
title = {{A Survey of Symbolic Execution Techniques}}
```
- This is necessary in order to prevent down-casing of capitalized words, which is done by some bibliography styles.
- year** It is not allowed to mention the year inside the title of a conference or a journal, for example, this would be illegal:
- ```
booktitle = {{1994 IEEE International Conference on Computer Languages}},
```
- The year should only be mentioned in the year tag, nowhere else. In the year tag only numbers are allowed:
- ```
year = {1994},
```
- month** The month may contain only a number:
- ```
month = {12},
```
- volume** The volume may contain only a number:
- ```
volume = {32},
```
- number** The number may contain only a number:
- ```
number = {132},
```
- pages** The pages may contain either a number or two numbers separated by a double dash:
- ```
pages = {145--163},
```
- proceedings** The booktitle in the @inproceedings entry must always start with “Proceedings of the”, as in this example:
- ```
booktitle = {{Proceedings of the International
Conference on Computer Languages}},
```
- arXiv** If the archivePrefix is present, the eprint and the primaryClass must also be present and must adhere to the formatting principles of [arXiv identifiers](#):
- ```
@misc{bugayenko2021,
archivePrefix = {arXiv},
eprint = {2111.13384},
primaryClass = {cs.PL},
}
```
- typography** All tags in each BibTeX entry are checked for obeying the basic typography rules:
- No spaces are allowed in front of a comma, a semi-colon, a colon, a dot, a question mark, and an exclamation mark;
  - A text may not end with a dot, a comma, a semi-colon, a colon, or a dash;
  - A triple dash must be surrounded by spaces.
- Unicode** Any non-ASCII characters are prohibited in the entire .bib file.

## 4 Implementation

First, we include a few packages. We need [iexec](#) for executing Perl scripts:

```
1 \RequirePackage{iexec}
    Then, we process package options:
2 \RequirePackage{pgfopts}
3 \pgfkeys{
4   /bibcop/.cd,
5   verbose/.store in=\bibcop@verbose,
6   script/.store in = \bibcop@script,
7 }
8 \ProcessPgfPackageOptions{/bibcop}
```

`bibcop.pl` Then, we find the Perl script:

```
9 \makeatletter
10 \ifdefined\bibcop@script\else
11   \IfFileExists{bibcop.pl}
12     {\gdef\bibcop@script{perl ./bibcop.pl}}
13     {\gdef\bibcop@script{bibcop}}
14 \fi
15 \message{bibcop: The Perl script is at '\bibcop@script'^^J}%
16 \makeatother
```

`\bibliography` Then, we re-define the `\bibliography` command:

```
17 \makeatletter
18 \ifdefined\bibliography
19   \let\bibcop@oldbibliography\bibliography
20   \renewcommand\bibliography[1]{%
21     \iexec{\bibcop@script\space
22       \ifdefined\bibcop@verbose--verbose\fi\space
23       --latex '#1.bib'}%
24     \message{bibcop: style checking finished^^J}%
25     \bibcop@oldbibliography{#1}%
26   }
27 \fi
28 \makeatother
```

`\addbibresource` Then, we re-define the `\addbibresource` command:

```
29 \makeatletter
30 \ifdefined\addbibresource
31   \let\bibcop@oldaddbibresource\addbibresource
32   \renewcommand\addbibresource[1]{%
33     \iexec{\bibcop@script\space
34       \ifdefined\bibcop@verbose--verbose\fi\space
35       --latex '#1'}%
36     \message{bibcop: style checking finished^^J}%
37     \bibcop@oldaddbibresource{#1}%
38   }
39 \fi
40 \makeatother
41 \endinput
```

## Change History

|       |                                                                                              |   |                                                                                                      |                                                                                                                                                                 |
|-------|----------------------------------------------------------------------------------------------|---|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0.0.1 | General: First draft. . . . .                                                                | 4 | verbose option enables detailed logging inside the $\text{\TeX}$ log. . . . .                        | 4                                                                                                                                                               |
| 0.0.2 | General: Documentation extended, more rules added. . . . .                                   | 4 | The <code>-verbose</code> option introduced, to enable debugging information only on demand. . . . . | 4                                                                                                                                                               |
| 0.0.4 | General: Extra checks for the typography, together with more extensive Perl testing. . . . . | 4 | 0.0.6                                                                                                | General: The <code>script</code> package option introduced, to enable explicit configuration of the location of the <code>bibcop.pl</code> Perl script. . . . . |
|       | Package options introduced, the                                                              |   |                                                                                                      | 4                                                                                                                                                               |

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