
crate2bib: Citing Rust crates made easy

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Abstract

crate2bib is a collection of tools designed to convert Rust crates hosted on crates.io into bibliography entries. It queries the server, extracts metadata from the given crate and also searches for possible CITATION.cff files within the repository that hosts the code of the crate in interest. From this information, it formats the provided information such as name, version, authors and generates entries for all available candidates. With this approach, crates can be cited easily and existing citations for published crates can be found. The tool can be used as a webapp, python package, command-line utility or Rust crate.

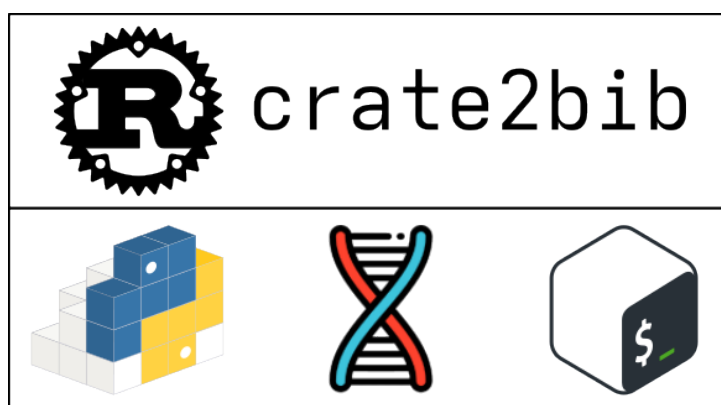


Figure 1: The various components of crate2bib are built on a Rust crate which is reused to provide a python library, a webapp and a CLI tool.

Statement of Need

crate2bib aims to provide a simple, user-friendly platform to cite Rust software in research papers, theses or technical documentation. As the field of scientific computing continues to grow, it's of best scientific practice to attribute contributions of libraries that underpin novel results and approaches. Instead of having to manually compile bibliography entries or manually search for the necessary information, which is prone to errors, crate2bib utilizes the published metadata which was already provided by the authors of the software. Furthermore, the provided methods can also be used for automation processes. The result is saved time as well as concisely structured citations which can be readily used within scientific publishing workflows. Incidentally, this paper already uses the provided methods extensively.

Over the course of the past years, multiple citation strategies have emerged within the $\text{\LaTeX}$ ecosystem. The BibTeX format has been the de-facto standard and still remains widely used. It was extended by natbib [1] with more citation styles and citing commands. Another alternative

is BibLaTeX which provides a "[...] complete reimplementa-tion of the bibliographic facilities provided by L^AT_EX" [2]. Tools such as [3] filltex target specific areas of research, enabling queries to ADS and INSPIRE databases. Within the Github ecosystem, the CITATION.cff format [4] was introduced that is being adapted by many maintainers. It is only natural that conversion tools have emerged, allowing the mapping of both directions. BibTeX2CFF [5] converts from BibTeX to the CFF format, while cffconvert [6] acts in the reverse direction. This project also provides tools such as an initializer [7] to quickly create new CITATION.cff files.

In order to connect the rapidly growing landscape of Rust-based software with academic publishing standards, it is utmost helpful to have methods available which can generate bibliography entries and aid in automation processes.

Library Details

The crate2bib Rust crate is the foundational component which enables the remaining tools (webapp, python bindings, cli utility). It holds the core components and logic and uses the request [8] crate together with crates.io.api [9] to access information from crates.io and repository hosting platforms such as github.com and codeberg.org. The latter crate was forked by the author [10] in order to provide WASM support which was required for the webapp but previously missing in its original version. To parse the obtained information, crate2bib relies on biblatex [11] and citeworks-cff [12]. Python bindings are produced with pyo3 [13] and published with maturin [14] while the webapp is built with dioxus [15].

Tool	Link
Webapp	jonaspleyer.github.io/crate2bib/
Python Bindings	pypi.org/project/crate2bib/
CLI tool	crates.io/crates/crate2bib-cli
Rust crate	crates.io/crates/crate2bib

Table 1: List of provided tools by crate2bib.

Acknowledgements

Image credit: Python Software Foundation, Dioxus Labs, Wikimedia Commons

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