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# ISAAC Chrome Extension

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## Keywords

Javascript

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In 2022 I had my first experience with the [ISAAC database](#) by the Dutch [NWO](#) research funding organization. ISAAC is where you apply for funding and where grants get tracked. As such, research output is recorded in this database.

The list of supported research output types in ISAAC is a bit dated, but includes scientific articles, books and monographs, book chapters, PhD theses, conference proceedings papers, professional publications, publications aimed at a broad audience, patents, contracts, and other. With [Recognition & Rewards](#) in mind, this list should be more diverse. And clearly missing are software and data, because these are already supported by global unique identifiers and dedicated efforts for software citations and data citations. FAIR has progressed a lot for these two types.

When entering new research output to a project in ISAAC, you get asked to fill out various HTML forms. For articles, each author is a separate HTML form. All in all, quite a bit of work. But with unique identifiers and open APIs, it is a waste of research funding to have to enter this all by hand. Some time earlier I heard of browser plugins in the USA that automagically filled out those forms, and realized I wanted that too.

Fortunately, Lars Willighagen had done much of the work already with [citation.js](#) (doi:[10.7717/peerj-cs.214](#)), a JavaScript library that can convert formats like BibTeX into formatted references (with [Citation Style Language](#) and [citeproc-js](#)), but also can support various identifiers to fetch bibliographic metadata. All we needed is to integrate that. And so the [ISAAC Chrome extension](#) was born. But the history, technology, and use has not been written up, while we have a solid base of some 50 users who regularly use it. And one user [wrote](#):

| *Werkt geweldig. [...] dit de enige manier waarop publicaties redelijk ingevoerd kunnen worden.*

Actually, maybe we should rename the extension to *ISAAC Browser Extension*, because it also works in Brave and Edge.

## 2025 updates

The last update had been a while, and we got reports of some changes on the ISAAC database side, and we could confirm at least one of the HTML form identifiers had changed, so we fixed filling out the Open Access status of output. This is released as [version 1.5.0](#) (doi:[10.5281/zenodo.14562484](#)).

Another change is that the ISAAC database now supports listing the [ORCID](#) identifier of authors, and this metadata is increasingly available from research output metadata, and [a single line change](#) was enough for Lars to update the extension to automatically fill that out too. This is FAIR in action. This version is released as [version 1.6.0](#) (doi:[10.5281/zenodo.14562504](#)) and should be available from the webstore soon.

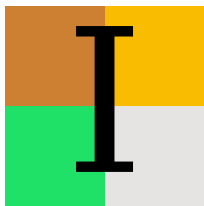
## How it works

While the ISAAC database does not have an API, at least we found sufficient hooks in the HTML to get a reproducible workflow. The foundation of the browser extension is global unique identifiers, and it supports DOIs, ISBNs, and PubMed identifiers for research output. For authors, it supports the ORCID. To fetch the metadata, it uses online resources Crossref, DataCite, and mEDRA, Google Books and OpenLibrary, PubMed and Unpaywall. The first three to fetch metadata for DOIs, the next two for ISBN numbers, and PubMed for, well, PubMed identifiers. Based on the retrieved metadata it determines which type of research output it should fill out the HTML for.

[Unpaywall](#) is used to see if the output is, for example, published in a purely open access venue (like a CC-BY-only journal like [eLife](#) or Nature's [Scientific Data](#)), or published in a hybrid journal. The ISAAC database does not have the option to drop a URL (which could be automated with Unpaywall too), but does allow uploading documents into their database. This last is left to the user.

## How to use it

Users would install the browser extension and this would add an add-on icon to the toolbar.



The icon shows the various colors of Open Access with an **I**, for identifier. The user would then login on the ISAAC database, open their project grant page, and navigate to the Product tab:

## Producten

Dossiernummer 203.001.121

Opslaan Sluiten

Titel BridgeDb and Wikidata: a powerful combination generating interoperable open research Financiering Open Science (OS) Fund 2020/2021 Status Afgesloten

**Toevoegen**

### Wetenschappelijk artikel

Titel	Naam	Uitgavejaar	Indiener	Indiendatum	Status
Unifying the identification of biomedical entities with the Bioregistry	C. T. Hoyt , M. Balk , Tiffany J. Callahan , D. Domingo-Fernández , Melissa A. Haendel , Harshad B. Hegde , Daniel S. Himmelstein , K. Karis , J. Kunze , T. Lubiana , N. Matentzoglou , J. McMurry , S. Moxon , Christopher J. Mungall , A. Rutz , Deepak R. Unni , E. Willighagen , D. Winston , Benjamin M. Gyori	2022	dr. E.L. Willighagen	05-12-2022	Ingediend

### Professionele publicatie

Titel	Naam	Uitgavejaar	Indiener	Indiendatum	Status
BridgeDb and Wikidata: a powerful combination generating interoperable open research (BridgeDb)	E. Willighagen , M. Kutmon , M. Martens , D. Slenter	2022	dr. E.L. Willighagen	13-03-2022	Ingediend

### Publicatie voor een breed publiek

Titel	Naam	Uitgavejaar	Indiener	Indiendatum	Status
BridgeDb NWO grant update #6: second hackathon	E.L. Willighagen	2023	dr. E.L. Willighagen	10-04-2023	Ingediend
BridgeDb NWO grant update #7: wrapping up the project	E.L. Willighagen	2023	dr. E.L. Willighagen	10-04-2023	Ingediend

To use the extension, the user would take the following steps. First, click the "Toevoegen" button, green-blue with white letters in the above screenshot. This would give a page like this:

### Product toevoegen

Wetenschappelijk artikel

#### Wetenschappelijk artikel

Artikelen gepubliceerd in wetenschappelijke tijdschriften die een anoniem peerreview systeem toepassen, dat los staat van de editors.

En:

Publicaties in tijdschriften die niet-gerefereerd zijn, maar die door het veld belangrijk worden gevonden.

Boek/monografie

#### Boek/monografie

Boeken geschreven voor een publiek van wetenschappers en onderzoekers die de resultaten van wetenschappelijk onderzoek beschrijven.

Hoofdstuk in boek

#### Hoofdstuk in boek

Bijdragen aan wetenschappelijke boeken gericht op een publiek van wetenschappers en onderzoekers.

Proefschrift

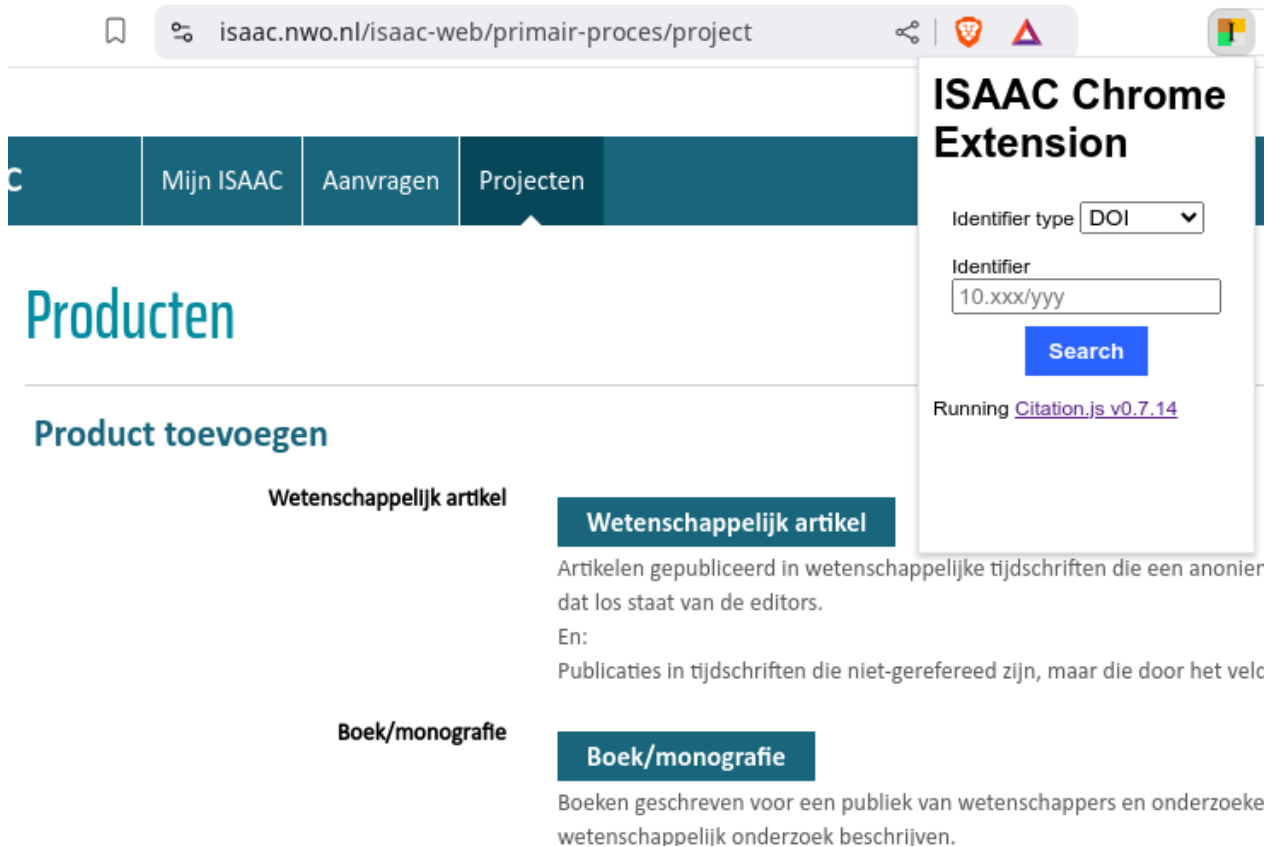
#### Proefschrift

Second, and optionally, click one of the types. The metadata retrieved by the extension contains sufficient information to make the right guess, so that this step is optional. If you find that the

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metadata is wrong and the wrong guess was made, in this step you can first manually indicate the research output type.

Third, on the page with the above screenshot (or, optionally, after indicating the output type), click the ISAAC Chrome Extension icon in the browser toolbar to give a popup dialog:



The screenshot shows a browser window with the URL `isaac.nwo.nl/isaac-web/primair-proces/project`. The website has a navigation bar with 'Mijn ISAAC', 'Aanvragen', and 'Projecten'. The main content area is titled 'Producten' and lists two categories: 'Wetenschappelijk artikel' and 'Boek/monografie'. A Chrome extension popup is open, titled 'ISAAC Chrome Extension'. It contains a dropdown menu for 'Identifier type' set to 'DOI', a text input field for 'Identifier' containing '10.xxx/yyy', a blue 'Search' button, and a status bar at the bottom that says 'Running Citation.js v0.7.14'.

Fourth, select the identifier type (DOI, ISBN, or PubMed) and give the identifier itself, and then click Search. For example, for a DOI, it would look like this:

## ISAAC Chrome Extension

Identifier type

Identifier


Running [Citation.js v0.7.14](#)

Fifth, the plugin will then guide you through the ISAAC HTML forms, just like you would do manually, but with the important difference that some forms show in different order. But rest assured, it will not submit anything before your final approval. For example, for a journal article

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I would immediately go to the HTML form for the first author, which, for a random article, could look like this:

### Auteur

Volgnummer	<input type="text" value="1"/>
ORCID ID 	<input type="text" value="XXXX-XXXX-XXXX-XXXX"/>
Titulatuur	<input type="text"/>
Voornaam	<input type="text" value="Johanna"/>
Voorletters*	<input type="text" value="J."/>
Tussenvoegsel	<input type="text"/>
Achternaam*	<input type="text" value="Revol-Cavalier"/>
Geboortedatum	<input type="text"/>
Gender*	<input type="radio"/> Man <input type="radio"/> Vrouw <input type="radio"/> Anders <input checked="" type="radio"/> Onbekend

---

\* = verplicht veld

Verder

Terug

By clicking "Verder", the browser extension allows you to add missing metadata (for example, the ORCID is not listed for this author in the CrossRef metadata and the gender is not shared by the publisher), and sometimes you may find yourself needing to correct metadata.

Sixth, after going through all author pages, you will return to the main product form, which will look something like this (for a random paper):

## Product

Indienen	Opslaan concept en sluiten	Annuleren
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## Wetenschappelijk artikel

**Titel** <sup>\*</sup> The Octadecanoids: Synthesis and Bioactivity of 18-Carbon Oxygenated Fatty Acids in Mammals, Bacteria, and Fungi

**DOI** <sup>?</sup> <https://doi.org/10.1021/acs.chemrev.3c00520>

## Auteur

	Naam	Geboortedatum	geslacht	
1	J. Revol-Cavalier		Onbekend	>
2	A. Quaranta		Onbekend	>
3	John W. Newman		Onbekend	>
4	Alan R. Brash		Onbekend	>
5	M. Hamberg		Onbekend	>
6	Craig E. Wheelock		Onbekend	>

**Toevoegen**

## Medium-gegevens

**Gerefereerd** <sup>\*</sup>  ja  nee

**Titel tijdschrift** <sup>\*</sup> Chemical Reviews

**ISSN** 0009-2665

**Uitgavejaar** <sup>\*</sup> 2024

**Nummer** <sup>\*</sup>

**Beginpagina** <sup>\*</sup>

**Eindpagina** <sup>\*</sup>

**Open Access** <sup>?</sup>  ja  nee

- Kenmerk** <sup>\*</sup>
- GREEN: artikel in een traditioneel abonnee-tijdschrift waarvan een versie (zonder embargo) is gedeponeerd in een repository.
  - GOLD: artikel in een volledig open access tijdschrift, geregistreerd in de Directory of Open Access Journals (DOAJ).
  - HYBRID: artikel in een abonnee-tijdschrift dat onmiddellijk open access beschikbaar is tegen betaling van een APC door de auteur of diens instelling.

Here you can add the final missing information and upload additional files, like a PDF of the article. In the above screenshot we find some required (red asterix) missing. In this case, the DOI referred to an article published as "as soon as publishable" and the page numbers and issue is simply not known yet. You can also see the Unpaywall metadat in action here.

Seven, like before, the final submission of this new output is done manually. The ISAAC Chrome Extension requires that manual step; on purpose: you are in control.