

# Web editor for JSON/Bibframe data in libraries

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SWIB2021

Before

After

Editeur MARC - catalogue RERO

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	151126s1899 sz 000  fre d
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$a R008312610
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$a 201807201417 \$b VLOAD \$c 201801041023 \$d AUTHORITY \$c 201706021127 \$d VLOAD \$c 201601011726 \$d VLOAD \$y 201511261111 \$z 4804
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$a RERO nepast
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$a sz \$c ch-ne
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$a s1dr \$2 rero
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$a s2pe \$2 rero
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$a Règlement des examens de l'académie de Neuchâtel (du 10 février 1899) / \$c [au nom du Conseil d'Etat: le président, Comtesse, le chancelier, Bonhôte]
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$a [Neuchâtel] : \$b [éditeur non identifié], \$c [1899]
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$a 23 p.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$b txt \$2 rdacontent
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$b n \$2 rdamedia
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$b nc \$2 rdacarrier
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$a Neuchâtel (canton). \$b Conseil d'Etat
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$a noselfmerge
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$a nebpun
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$a VIRTUA50

Before

After

## Bibliographic Document

✖ Cancel

💾 Save ▾

Add field

Press space for all.

Contained in (host do...

Illustrative contents

Contents

Genres, forms

Language of represen...

Series statement

Edition statements

Notes

Summaries

Subjects

Original titles

Titles \*

Title ▾ 📄

Type \* title proper ▾

Titles \*

Values ▾ 📄

Value \* Règlement des examens de l'académie de Neuchâtel (du 10 février 1899)

Statements of responsibility 🗑️

Responsibility 📄

Values ▾ 📄

Value \* [au nom du Conseil d'Etat: le prés

Contribution 🗑️

Agents 📄

Agent \*

Link to corporate body entity ▾

Link to corporate body entity

Corporate body \* [Neuchâtel \( Suisse, canton \). Conseil d'État](#)  🗑️

Role \* contributor ▾

Publication, manufacture, distribution, production \*

Publication, manufacture, distribution, production ▾ 📄

Jump to

Identifiers

Types

Content, media,  
carrier types

Mode of issuance

Titles

Statements of  
responsibility

Contribution

Publication,  
manufacture,  
distribution,  
production

Extent

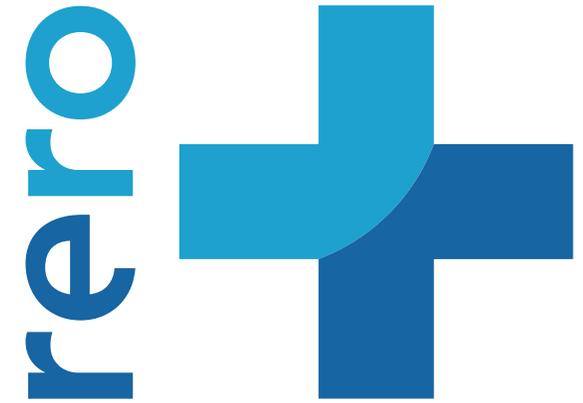
Languages

Administrative  
metadata

# The RERO+ Foundation

## **2021: RERO becomes RERO+**

- Competence and service centre for libraries in Switzerland
- Non-for-profit
- Open source philosophy
- Hosts and develops IT solutions in Switzerland:
  - SONAR
  - RERO ILS



# JSON based editor



- Used in the two solutions (both based on Invenio 3)
- Collaboration with UCLouvain (for RERO ILS)

# The challenge of usability

A. Data structure  
and granularity

B. Compactness

C. Visual layout

D. RDA labels  
and lists

E. Validation and  
feedback during  
data input

F. Textual help  
elements

# A. Data structure and granularity

RERO ILS

MARC

Publication, manufacture, distribution, production \*

Publication, manufacture, distribution, production ▾ 📄

Type \* Publication ▾ Date 1 \* 1831 📅

Places \*

Place ▾ 📄

Country \* Switzerland (sz) ▾ Cantons GE (Geneva) ▾

Statements 🗑️

Statement 📄 🗑️

Type \* Place ▾

Labels \*

Values ▾ 📄 🗑️

Value \* Genev*i*

Values 📄 🗑️

Value \* Γενεύη

Language gre-grek ▾ 🗑️

Statement 📄 🗑️

Type \* agent ▾

Labels \*

Values ▾ 📄 🗑️

Value \* apo to typografeion Petrou Antwniou Bc

Values 📄 🗑️

Value \* από το τυπογραφείον Πέτρου Αντωνίου

Language gre-grek ▾ 🗑️

# A. Data structure and granularity

RERO ILS

MARC

Publication, manufacture, distribution, production \*

Publication, manufacture, distribution, production ▾

Type \* Publication ▾ Date 1 \* 1831 ▾

Places \*

Place ▾

Country \* Switzerland (sz) ▾ Cantons GE (Geneva) ▾

Statements ▾

Statement ▾

Type \* Place ▾

Labels \*

Values ▾

Value \* Genev*ι*

Values ▾

Value \* Γενεύη Language gre-grek ▾

Statement ▾

Type \* agent ▾

Labels \*

Values ▾

Value \* apo to typografeion Petrou Antoniou Bc

Values ▾

Value \* από το τυπογραφείον Πέτρου Αντωνίου Language gre-grek ▾

# A. Data structure and granularity

RERO ILS

MARC

Editeur MARC - catalogue RERO

<input type="checkbox"/>	008			110929s1831  sz       00   gre d
<input type="checkbox"/>	035			\$a R006302444
<input type="checkbox"/>	039		9	\$a 202006182100 \$b VLOAD \$c 202001201444 \$d VLOAD \$c 201906182007 \$d VLOAD \$c 201807101048 \$d VLOAD \$y 201109291458 \$z 6024
<input type="checkbox"/>	040			\$a SzZuIDS BS/BE A100 \$d RERO gevbge
<input type="checkbox"/>	041	1		\$a gre \$h grc
<input type="checkbox"/>	044			\$a sz \$c ch-ge
<input type="checkbox"/>	072		7	\$a s1th \$2 rero
<input type="checkbox"/>	245	0	3	\$6 880-01 \$a Hē Nea Diathēkē tou kyriou kai sōtēros ēmōn Iēsou Chrēstou / \$c met. eis tēn sēmerinēn tōn hellēnōn dialektōn, dī adeias tēs Anatolikēs Ekklesiās ; metatypotheisa d'aparallaktos apo tēn biblikēn hetaireian tēs Genebis pros charin ton Hellēnon
<input type="checkbox"/>	246	3		\$a Nea Diathiki tou kyriou kai sotiros imon Ihsou Christou / met. eis tin simerinin ton Ellinon dialekon, di adeias tis Anatolikis Ekklesias ; metatypotheisa d'aparallaktos apo tin vivlikin Etaireian tis Genevis pros charin ton Ellinon
<input type="checkbox"/>	264		1	\$6 880-02 \$a Genevi : \$b apo to typografeion Petrou Antoniou Bonnantou, \$c 1831
<input type="checkbox"/>	300			\$a 428 p. ; \$c 23 cm
<input type="checkbox"/>	336			\$b txt \$2 rdacontent
<input type="checkbox"/>	337			\$b n \$2 rdamedia
<input type="checkbox"/>	338			\$b nc \$2 rdacarrier
<input type="checkbox"/>	500			\$a Texte disposé sur 2 col.
<input type="checkbox"/>	710	2		\$a Société biblique de Genève
<input type="checkbox"/>	710	2		\$a Imprimerie Bonnant (Genève)
<input type="checkbox"/>	730	0		\$a Bible. \$n 200. \$p N.T. \$l Grec moderne
<input type="checkbox"/>	880	0	3	\$6 245-01/(S \$a H Nea diathiki tou kyriou kai swthros hmon Ihsou Christou / \$c met. eis tēn sēmerinēn tōn ellēnōn diālekon, di' adeias tēs Anatolikēs Ekklesiās ; metatypotheisa d' aparallaktos apo tēn biblikēn etaireian tēs Genevīs, pros charin tōn Ellēnōn
<input type="checkbox"/>	880		1	\$6 264-02/(S \$a Genevi : \$b apo to typografeion Petrou Antoniou Bonnantou, \$c 1831

# A. Data structure and granularity

## Name + simple value

```
"extent": "48 pages"
```

Extent 
<input type="text" value="48 pages"/>

## Name + array of simple values

```
"illustrativeContent": [  
  "illustrations",  
  "maps"  
],
```

Illustrative contents 	
Illustrative content	<input type="text" value="illustrations"/>  
Illustrative content	<input type="text" value="maps"/>  

Almost all fields are repetitive in MARC21!

# A. Data structure and granularity

## Name + array of objects (name + simple values)

```
"identifiedBy": [  
  {"qualifier": "volume 3",  
   "status": "invalid or cancelled",  
   "type": "bf:Isbn",  
   "value": "9782012100190"}  
]
```

Identifiers 

Identifier 

Type *	<input type="text" value="ISBN"/>	Identifier value *	<input type="text" value="9782012100190"/>
Status	<input type="text" value="invalid or cancelled"/> 	Qualification	<input type="text" value="volume 3"/> 

# A. Data structure and granularity

## Name + array of arrays of objects (name + simple values)

```
"responsibilityStatement": [  
  [  
    {"value": "illustrations Albert Uderzo",  
     "language": "rus-cyrl",  
     "value": "иллюстрации Альберта Удерцо"},  
  ],  
  [  
    {"value": "textes René Goscinny",  
     "language": "rus-cyrl",  
     "value": "тексты Рене Госинни"}  
  ]  
]
```

Statements of responsibility

Responsibility

Values

Value \* illustrations Albert Uderzo

Values

Value \* иллюстрации Альберта Удерцо

Language rus-cyrl

Responsibility

Values

Value \* textes René Goscinny

Values

Value \* тексты Рене Госинни

Language rus-cyrl

# B. Compactness

## Bibliographic Document

Add field

Press space for all.

Contained in (host docu...

Contents

Edition statements

Genres, forms

Illustrative contents

Original titles

Series statement

Subjects

Summaries

Subtype

Material unit

- fields displayed by default.  
- fields hidden by default.

Titles \*

Title

Type

Title

Add fields

Other title information

Parts, sections, supplements

Value \* Hē Nea Diathēkē tou kyriou kai sōtēros ēmōn Iēsou Chrēstou

Values

Value \* H Nēa diathēkē tou kyriou kai swtēros hmōn Ihsou Xristou

Language gre-grek

Title

Type \* variant title

Titles \*

Values

Value \* .; metatypotheisa d'aparallaktos apo tin vivlikin Etaireian tis Genevis pros charin ton Ellinon

Statements of responsibility

Responsibility

"Jump to" section.

Cancel Save

Jump to

- Identifiers
- Types
- Content, media, carrier types
- Mode of issuance
- Titles
- Statements of responsibility
- Contribution
- Publication, manufacture, distribution, production
- Extent
- Dimensions
- Notes
- Languages
- Language of representative expression
- Classifications
- Administrative metadata

# C. Visual layout

## 1. Repetition of labels

The image compares two visual layouts for a 'Statements of responsibility' interface. The left layout, labeled 'with', shows a clean design with two distinct sections. Each section has a 'Responsibility' header and a 'Values' dropdown menu. The first section contains two 'Value \*' entries: 'illustrations Albert Uderzo' and 'иллюстрации Альберта Удерцо'. The second section contains two 'Value \*' entries: 'textes René Goscinny' and 'тексты Рене Госинни'. The right layout, labeled 'without', shows a similar structure but with a 'Language' dropdown menu next to each 'Value \*' entry. The language is set to 'rus-cyrl'. The overall design is more cluttered due to the repetition of the language label.

Statements of responsibility

Responsibility **with**

Values

Value \* illustrations Albert Uderzo

Values

Value \* иллюстрации Альберта Удерцо

Responsibility

Values

Value \* textes René Goscinny

Values

Value \* тексты Рене Госинни

Statements of responsibility

Value \* illustrations Albert Uderzo

Value \* иллюстрации Альберта Удерцо

Language rus-cyrl

Value \* textes René Goscinny

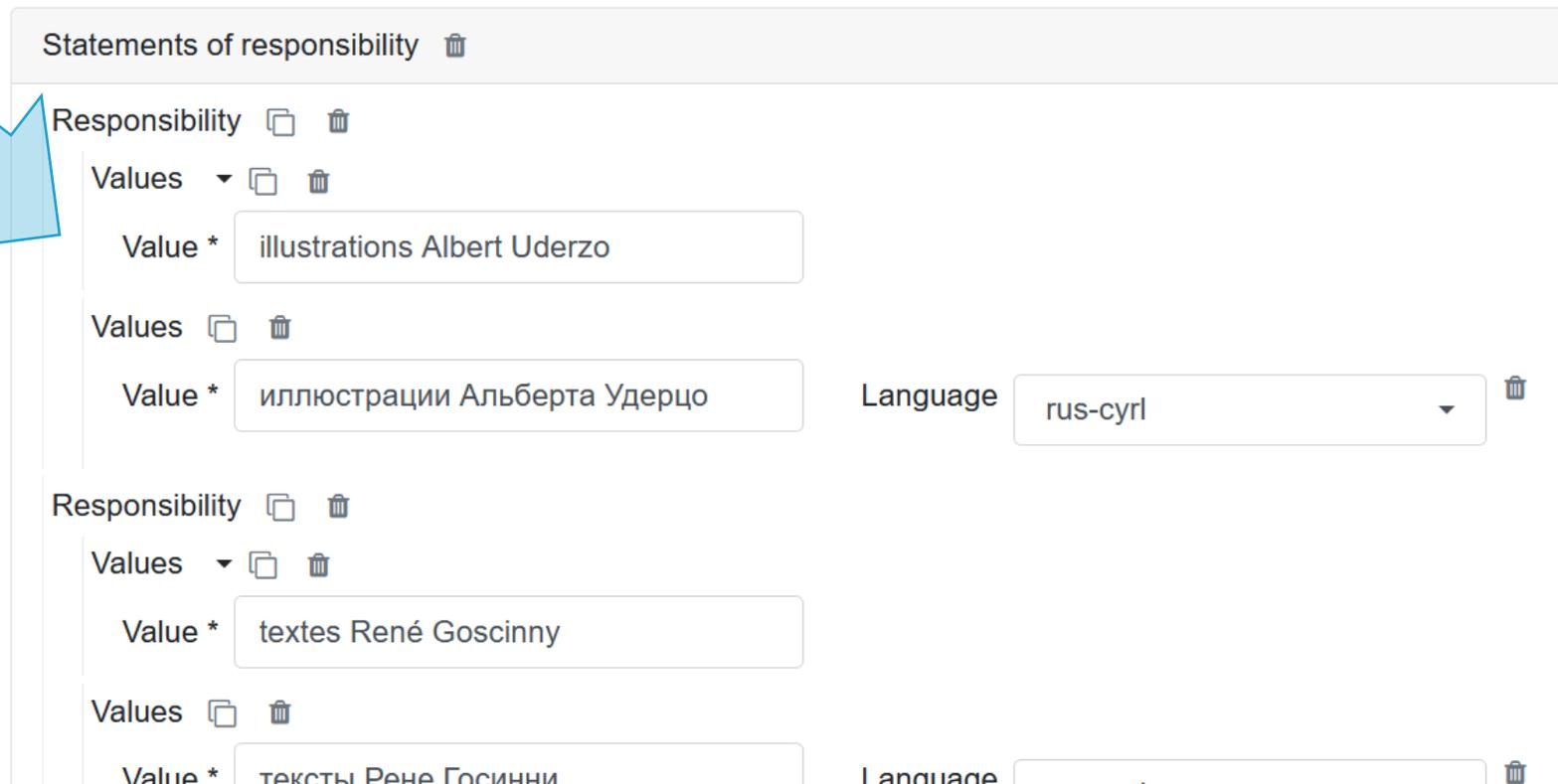
Value \* тексты Рене Госинни

Language rus-cyrl

**without**

# C. Visual layout

2. Visual helps for the structure: line and indentation
3. (Try to keep a) clean design



Statements of responsibility 

Responsibility  

Values   

Value \* illustrations Albert Uderzo

Values  

Value \* иллюстрации Альберта Удерцо Language rus-cyrl 

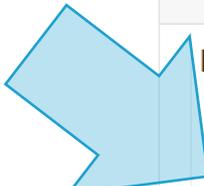
Responsibility  

Values   

Value \* textes René Goscinny

Values  

Value \* тексты Рене Госинни Language 



# C. Visual layout

## 4. Responsiveness, size and alignment of the input fields

Contribution 

Agents 

Agent \* 

Collectivité 

Collectivité 

Nom \* Carambolage

Unités subordonnées  

Lieu du congrès Baden-Baden 

Numéro du congrès 1 

Date du congrès 1992 

Congrès

Rôle \* auteur 

Contribution 

Agents 

Agent \* 

Collectivité 

Collectivité 

Nom \* Carambolage

Unités subordonnées  

Lieu du congrès Baden-Baden 

Numéro du congrès 1 

Date du congrès 1992 

Congrès

Rôle \* auteur 

# D. RDA labels and lists

- Multilingual
- Vocabulary reuse
- Some not user-friendly labels... but no MARC codes

The screenshot shows a portion of an RDA form. At the top, there is a header 'Content, media, carrier types' with a trash icon. Below it is a sub-section 'Content, media, carrier type' with a copy icon. This section contains three fields: 'unmediated', 'unmediated', and 'Content type \*'. The 'Content type \*' field has a dropdown menu open, showing options: 'text', 'three-dimensional form', 'three-dimensional moving image', 'tactile notated movement', 'tactile notated music', and 'tactile text'. Below this is the 'Carrier type' field, also with a dropdown menu open, showing options: 'tactile text', 'tactile three-dimensional form', 'text', 'three-dimensional form', 'three-dimensional moving image', and 'two-dimensional moving image'. The 'text' option in the second dropdown is highlighted in blue. Below the 'Carrier type' field is the 'Mode of issuance \*' field, which is currently empty. Below that is the 'multipart monograph' field, which is also empty. At the bottom, there is a 'Subtype \*' field with a dropdown menu open, showing options: 'Comp' and 'Text'.

# E. Validation and feedback during data input

- Required or not, lists, integers, regular expressions, field length
- ISBN special validation

Date 1 \* 45646 ⌵ ⓘ  
should be <= 2050

Identifier value \* 9783893222582  
A document already exists under this reference: [Show](#)

Identifier value \* 9783893222583  
This ISBN is not valid.

Language value \* German

language of representation  
Select an option

Contents 🗑

Content Example:

Summaries 🗑

Summary ⌵ 📄 <

- German
- Ganda
- Gayo
- Gbaya
- Georgian
- German**
- German, Middle High (ca. 1050-1350)
- German, Old High (ca. 750-1050)
- Germanic (Other)
- Gilbertese

# E. Validation and feedback during data input

- Autocomplete (for links to other resources)

The screenshot shows a web form titled "Contribution" with a trash icon. The form is divided into sections: "Agents", "Publication, manufacture, ...", and "Places".

- Agents section:**
  - Agent \***: A dropdown menu with the selected option "Link to corporate body entity".
  - Link to corporate body entity**: A text input field containing "conseil fédéral suisse" and a search icon.
  - Role \***: A dropdown menu with the selected option "author".
- Publication, manufacture, ... section:**
  - Publication, manufacture**: A text input field.
  - Type \***: A dropdown menu with the selected option "Publication".
- Places section:**
  - Places \***: A section header.
  - Place**: A dropdown menu with a trash icon.
  - Country \***: A dropdown menu with the selected option "No p".
  - Place**: A text input field.

An autocomplete dropdown menu is open over the "Corporate body \*" field, listing several options:

- link to authority idref
- Suisse. Conseil fédéral** (highlighted in blue)
- Suisse. Conseil national
- Suisse. Conseil des États
- Suisse. Conseil fédéral
- Swiss Federal Council
- link to authority gnd
- Schweiz. Bundesrat
- Schweiz. Bundesversammlung. Nationalrat
- Schweiz. Bundesversammlung. Ständerat
- Schweiz. Bundesversammlung. Nationalrat. Geschäftsprüfungskommission

# F. Textual help elements

- Placeholders: examples of data
- Tooltips: definition of the fields and some input rules

Record every different illustrative content in a new field. Use one or more RDA recommended terms, in the singular or plural (MARC 300\$b)

Dimensions

Example: 22 cm

Illustrative content

RDA recommended terms: illustrations, maps, photographs, portraits, ...

Illustrative content

RDA recommended terms: illustrations, maps, photographs, portraits, ...

# What's behind it?

A data model defined in JSON schema  
<https://ils.test.rero.ch/schemas/documents>

## **54 first-level bibliographic properties**

- The editor is generic: it works for all kinds of JSON data.
- Javascript library based on Angular 12
  - ng-core by RERO+ ([Github](#))
  - based on ngx-formly ([Github](#))

# What's behind it?

## JSON syntax.

Bibframe  
structure (keys of  
the fields).

```
"credits": {  
  "title": "Notes on statement of responsibility",  
  "description": "Note used for agents [...]",  
  "type": "array",  
  "minItems": 1,  
  "items": {  
    "title": "Note on statement of responsibility",  
    "type": "string",  
    "form": {  
      "placeholder": "Example: Additional  
collaborators: Bernard Levrat, Eric Wehrli"  
    }  
  },  
  "form": {  
    "hide": true  
  }  
}
```

RDA labels (titles of  
the fields).

# What's behind it?

Form options (JSON schema custom fields):  
placeholder, size of the  
input field, etc.



```
"extent": {  
  "title": "Extent",  
  "description": "Record the number of units and the type of  
unit. For the type of unit, use RDA recommended terms.",  
  "type": "string",  
  "minLength": 1,  
  "form": {  
    "placeholder": "Example: 355 pages",  
    "navigation": {  
      "essential": true  
    },  
    "hide": true,  
    "templateOptions": {  
      "cssClass": "w-md-50"  
    }  
  }  
}
```

# Editing JSON versus MARC

## Positive

- Better data quality (data validation)
- Better UX: better learning curve than MARC, responsiveness
- A generic editor for all kinds of JSON data
- JSON and JSON schema are machine and human readable

## Negative

- UX disadvantages for power users
- Difficulty to abandon MARC
  - Big mapping effort for import/export
  - Changing standards (Bibframe)
  - Resistance to change in the libraries

# A step towards semantic data

- A way to enter high structured bibliographic data
- Some values stored directly in LD format (bf:Place, bf:Agent, rdaco:1020, ...)
- Add a `@context` to provide JSON-LD
- Dynamic integration of IdRef and GND data
  - Pre-requisite: a mapping
  - Integrate external data sources is always an important effort

Merci

Any questions?

[rero.ch](https://rero.ch)



[info@rero.ch](mailto:info@rero.ch)



[rero](https://github.com/rero)



[@reroplus](https://twitter.com/reroplus)



[company/rero](https://www.linkedin.com/company/rero)



Test it!  
[ils.test.rero.ch](https://ils.test.rero.ch)



# Abstract

This presentation shows a cataloguing form created to edit data stored in a Bibframe/JSON format. It points out the specificities, obstacles, advantages and difficulties of this implementation in comparison to a raw MARC editor. On the one hand, the interface must be really user-friendly, as it is targeted at public, school and special libraries. On the other hand, it must enable to receive granular bibliographic records from MARC and to edit JSON data that is hierarchically structured and deeply nested, composed of a multitude of fields with different conditionalities and validation rules.

The context of this project is the transition by RERO+, a Swiss competence and service centre for libraries, to a fully open source and in house library system called RERO ILS in 2021. For this new system, it was decided to abandon the MARC format and to work directly in JSON instead, using the Bibframe model as far as possible. RERO ILS is based on the Invenio 3 framework proposed by CERN, which heavily relies on JSON and JSON schema for resource management. About 60 libraries in Switzerland are using RERO ILS since July 2021. The editor is also implemented within SONAR, another RERO+ software made to manage institutional repositories.

RERO ILS source code : <https://github.com/rero/rero-ils/>