

6. March 2023

# Metadata services: Changes in RDF format from 6 June 2023 (Export Release 2023.02)

## 1. Release schedule

In accordance with the German National Library's (DNB) release planning for export formats<sup>1</sup>, the next change in the conversion and data modelling will take place on 6 June 2023. There may be disruptions to the interfaces and the Data Shop between 08:00 and 12:00 noon during the technical changeover.

## 2. Linked Data Service in general

### 2.1. Full copies

Following the export releases, it is expected that updated full copies of the Integrated Authority File (GND<sup>2</sup>) and the DNB's bibliographic data will be made available for download in the serialisation formats RDF/XML, Turtle, JSON-LD, as an HDT file<sup>3</sup> and in N-Triples as of March, June/July and October/November<sup>4</sup>.

Metadata provenance dump deliveries are effected at the same intervals. The provenance information is modelled along the lines of PROV Ontology<sup>5</sup> and published in the form of a separate data copy. Additional information regarding planning, documentation and modelling is available on the DNB Wiki<sup>6</sup>.

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<sup>1</sup> <https://wiki.dnb.de/x/wgcbBQ> available only in German

<sup>2</sup> <https://www.dnb.de/EN/gnd>

<sup>3</sup> Header, Dictionary, Triples; <https://www.rdfhdt.org/what-is-hdt/>

<sup>4</sup> <https://data.dnb.de/opendata/>

<sup>5</sup> <https://www.w3.org/TR/prov-o/>

<sup>6</sup> <https://wiki.dnb.de/x/46G5C> available only in German

Full copies of the bibliographic data from the German Union Catalogue of Serials (ZDB)<sup>7</sup> and the Address data of the German ISIL- and Library Codes Agency<sup>8</sup> will be updated in March and October/November.

The full copy for Entity Facts<sup>9</sup> is released monthly, albeit only in the format JSON-LD.

## 2.2. Prefixes used in the document

	dcterms:	<a href="https://purl.org/dc/terms/">https://purl.org/dc/terms/</a>
	gndo	<a href="https://d-nb.info/standards/elementset/gnd">https://d-nb.info/standards/elementset/gnd</a>
	owl:	<a href="https://www.w3.org/2002/07/owl#">https://www.w3.org/2002/07/owl#</a>
	rdf:	<a href="https://www.w3.org/1999/02/22-rdf-syntax-ns#">https://www.w3.org/1999/02/22-rdf-syntax-ns#</a>
	skos:	<a href="https://www.w3.org/2004/02/skos/core#">https://www.w3.org/2004/02/skos/core#</a>

## 3. Publication of RDF vocabularies

### 3.1. Changes in vocabulary “GND-Ontology”

- | Correction:  
The object property `gndo:compoundEquivalence`, which was implemented with release 2022.03<sup>10</sup> to describe the AND equivalence between the GND and various external thesauri, has now been renamed `gndo:intersectingCompoundEquivalence`.

```
<!-- https://d-nb.info/standards/elementset/gnd#intersectingCompoundEquivalence-->  
  
<owl:ObjectProperty rdf:about="https://d-nb.info/standards/elementset/gnd#intersectingCompoundEquivalence">  
  <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>  
  <rdfs:isDefinedBy rdf:resource="https://d-nb.info/standards/elementset/gnd#"/>  
  <rdfs:label xml:lang="de">UND-Aequivalenz</rdfs:label>  
  <rdfs:label xml:lang="en">intersecting compound equivalence</rdfs:label>  
  <rdfs:comment xml:lang="en">The intersection of two or more terms represents  
the GND concept.</rdfs:comment>  
  <marc21equivalent>$4 = EQ+</marc21equivalent>  
</owl:ObjectProperty>
```

## 4. Changes in GND conversions

### 4.1. Cross-concordance (GND-mul<sup>11</sup>)

- | New feature:  
One year ago – in release 2022.02<sup>12</sup> – the cross concordances between the GND, the Standard Thesaurus for Economics (STW) and the Medical Subject Headings (MeSH) were

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<sup>7</sup> <https://zeitschriftendatenbank.de/startseite>

<sup>8</sup> <https://sigel.staatsbibliothek-berlin.de/en/startseite>

<sup>9</sup> <https://www.dnb.de/EN/entityfacts>

<sup>10</sup> <https://www.dnb.de/lds/versionhistory> see 2022-09-27

<sup>11</sup> <https://wiki.dnb.de/x/ZV5ND>

<sup>12</sup> <https://www.dnb.de/lds/versionhistory> see 2022-06-07

made available as linked data dumps for the first time. This release now includes additional data dumps consisting of cross concordances between the GND and other thesauri (AGROVOC<sup>13</sup>, EMBNE<sup>14</sup>, LCSH<sup>15</sup>, NSogg<sup>16</sup>, RAMEAU<sup>17</sup> and TheSoz<sup>18</sup>) provided in linked data format. They will then be consistently updated at the usual frequency of three times a year. The cross concordances between the standardised GND vocabularies and the external thesauri available in these dumps were generated intellectually, in some cases with the support of machine-based processes (EMBNE<sup>19</sup>). The standard data linked in this way allows for (multilingual) meta searches in library catalogues and portals besides supporting external data imports and automatic indexing procedures. The terms and the relationships between them are described using SKOS<sup>20</sup> (Simple Knowledge Organization System).

### 4.1.1. GND – AGROVOC Multilingual Thesaurus

The mapping between the GND's agriculture, horticulture and food segment and the AGROVOC thesaurus<sup>21</sup> is maintained and made accessible as part of an ongoing cooperation between the DNB, the Food and Agriculture Organisation of the United Nations (FAO)<sup>22</sup> and the Leibniz Institute for the Social Sciences (GESIS<sup>23</sup>). The AGROVOC thesaurus is a structured collection of concepts, definitions, terms and their relations used in the food and agriculture industries.

Example:

```
@prefix skos: <http://www.w3.org/2004/02/skos/core#> .
@prefix dcterms: <http://purl.org/dc/terms/> .

<https://d-nb.info/gnd/1256207454> dcterms:isPartOf <https://d-
nb.info/datasets/authorities> ;
    skos:inScheme <https://d-nb.info/datasets/authorities> ;
    skos:exactMatch <https://https://aims.fao.org/aos/agrovoc/c_2536> ;
    skos:prefLabel "Elch"@de ;

<https://https://aims.fao.org/aos/agrovoc/c_2536> dcterms:isPartOf <https://d-
nb.info/mapping/gnd/agrovoc/target> ;
    skos:exactMatch <https://d-nb.info/gnd/1256207454> ;
    skos:prefLabel "elks"@en.
```

Examples in the test file:

- | authorities-gnd-agrovoc\_TESTDATEN.jsonld
- | authorities-gnd-agrovoc\_TESTDATEN.nt
- | authorities-gnd-agrovoc\_TESTDATEN.rdf
- | authorities-gnd-agrovoc\_TESTDATEN.ttl

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<sup>13</sup> <https://agrovoc.fao.org/>

<sup>14</sup> <https://datos.bne.es/inicio.html>

<sup>15</sup> <https://id.loc.gov/authorities/subjects.html>

<sup>16</sup> <https://thes.bncf.firenze.sbn.it/>

<sup>17</sup> <https://rameau.bnf.fr/>

<sup>18</sup> <https://lod.gesis.org/thesoz/de/>

<sup>19</sup> GND – EMBNE

<sup>20</sup> <https://www.w3.org/TR/skos-reference/>

<sup>21</sup> <https://agrovoc.fao.org/browse/agrovoc/en/>

<sup>22</sup> <https://www.fao.org/home/en>

<sup>23</sup> <https://www.gesis.org/en/home>

In future, the respective dump will be made available at <https://data.dnb.de/opendata/> using the following name:

```
mapping-authorities-gnd-agrovoc_lds_{datum}.FORMAT.gz
```

### 4.1.2. GND – EMBNE

The Biblioteca Nacional de España (BNE)<sup>24</sup> maintains a general authority file (for all entities) and a subject heading authority file (a part of this): Encabezamientos de materia de la Biblioteca Nacional de España (EMBNE)<sup>25</sup>.

The cross concordance between the subject headings in the Spanish authority file (EMBNE) and the GND was created by automatically cross-referencing LCSH-EMBNE and LCSH-GND mappings assessed by terminology experts at the German National Library (DNB) in cooperation with the Carl von Ossietzky Federal State and University Library, Hamburg – Specialised Information Service for Romance Languages<sup>26</sup>. This facilitates the linkage of commonly used, equivalent terms from both universal thesauri in all disciplines.

Example:

```
@prefix skos: <http://www.w3.org/2004/02/skos/core#> .
@prefix dcterms: <http://purl.org/dc/terms/> .

<https://d-nb.info/gnd/4163728-8> dcterms:isPartOf <https://d-
nb.info/datasets/authorities> ;
    skos:inScheme <https://d-nb.info/datasets/authorities> ;
    skos:exactMatch <https://datos.bne.es/resource/XX531789> ;
    skos:prefLabel "Kichererbse"@de .

<https://datos.bne.es/resource/XX531789> dcterms:isPartOf <https://d-
nb.info/mapping/gnd/embne/target> ;
    skos:exactMatch <https://d-nb.info/gnd/4163728-8> ;
    skos:prefLabel "Garbanzo"@es .
```

Examples in the test file:

- | authorities-gnd-embne\_TESTDATEN.jsonld
- | authorities-gnd-embne\_TESTDATEN.nt
- | authorities-gnd-embne\_TESTDATEN.rdf
- | authorities-gnd-embne\_TESTDATEN.ttl

In future, the respective dump will be made available at <https://data.dnb.de/opendata/> using the following name:

```
mapping-authorities-gnd-embne_lds_{datum}.FORMAT.gz
```

### 4.1.3. GND – LCSH und RAMEAU

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<sup>24</sup> <https://www.bne.es/en/about-us>

<sup>25</sup> <https://www.bne.es/es/noticias/0511-lista-abreviada-encabezamientos-de-materia-de-la-bne>

<sup>26</sup> <https://fid-romanistik.de/ueber-uns>

The cross concordance was developed as part of the MACS project. Multilingual Access to Subject (MACS) was a joint project by the Swiss National Library (NB)<sup>27</sup>, the Bibliothèque nationale de France (BnF)<sup>28</sup>, the British Library<sup>29</sup> and the German National Library (DNB).

Since then, terminology experts from the NB and DNB have been continually maintaining and providing access to the mapping in close cooperation with the BnF and the Library of Congress between the GND, the French authority file Répertoire d'autorité-matière encyclopédique et alphabétique unifié (RAMEAU)<sup>30</sup> and the American Library of Congress Subject Headings (LCSH)<sup>31</sup>.

The LCSH are a thesaurus that has been actively maintained since 1898 for the purpose of cataloguing materials held by the Library of Congress<sup>32</sup>. Other libraries in the United States use the LCSH for cooperative cataloguing purposes so that they can offer standardised subject access to their collections. The LCSH are also used internationally, often in translation.

The French authority file RAMEAU is used by the French National Library, university libraries, numerous public reading and research libraries, and several private organisations as their subject cataloguing language.

#### Example:

```
@prefix skos: <http://www.w3.org/2004/02/skos/core#> .
@prefix dcterms: <http://purl.org/dc/terms/> .
```

```
<https://d-nb.info/gnd/14263279-1> dcterms:isPartOf <https://d-
nb.info/datasets/authorities> ;
    skos:inScheme <https://d-nb.info/datasets/authorities> ;
    skos:closeMatch <https://id.loc.gov/authorities/subjects/sh2007007220> ,
<https://data.bnf.fr/ark:/12148/cb165543689> ;
    skos:prefLabel "Umami"@de .
```

```
<https://id.loc.gov/authorities/subjects/sh2007007220> dcterms:isPartOf <https://d-
nb.info/mapping/gnd/lcsh-rameau/target> ;
    skos:closeMatch <https://d-nb.info/gnd/4263279-1> ;
    skos:prefLabel "Umami (Taste)"@en .
```

```
<https://data.bnf.fr/ark:/12148/cb165543689> dcterms:isPartOf <https://d-
nb.info/mapping/gnd/lcsh-rameau/target> ;
    skos:closeMatch <https://d-nb.info/gnd/4263279-1> ;
    skos:prefLabel "Umami"@fr .
```

#### Examples in the test file:

```
| authorities-gnd-lcsh-rameau_TESTDATEN.jsonld
| authorities-gnd-lcsh-rameau_TESTDATEN.nt
| authorities-gnd-lcsh-rameau_TESTDATEN.rdf
| authorities-gnd-lcsh-rameau_TESTDATEN.ttl
```

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<sup>27</sup> <https://www.nb.admin.ch/snl/en/home.html>

<sup>28</sup> <https://www.bnf.fr/fr>

<sup>29</sup> <https://www.bl.uk/>

<sup>30</sup> <https://rameau.bnf.fr/>

<sup>31</sup> <https://id.loc.gov/authorities/subjects.html>

<sup>32</sup> <https://www.loc.gov/>

In future, the respective dump will be made available at <https://data.dnb.de/opendata/> using the following name:

```
mapping-authorities-gnd-lcsh-rameau_lds_{datum}.FORMAT.gz
```

#### 4.1.4. GND – NSogg

The Nuovo Soggettario (NSogg)<sup>33</sup> is a thesaurus that was developed for purposes of subject cataloguing at Italian libraries, museums, multimedia libraries, archives and documentation centres. The NSogg is issued by the Biblioteca Nazionale Centrale di Firenze (BNCF)<sup>34</sup>. It was first used in 2007 to index the Bibliografia Nazionale Italiana (BNI) and has been continually developed ever since.

The cross concordance between the subject headings of the Italian authority file NSogg and the GND was created by the BNCF and Bonn University and State Library – Special Information Service for Romance Languages<sup>35</sup>.

The mapping between the GND and the NSogg thesaurus is being further developed.

Example:

```
@prefix skos: <http://www.w3.org/2004/02/skos/core#> .
@prefix dcterms: <http://purl.org/dc/terms/> .
```

```
<https://d-nb.info/gnd/4037220-0> dcterms:isPartOf <https://d-
nb.info/datasets/authorities> ;
    skos:inScheme <https://d-nb.info/datasets/authorities> ;
    skos:exactMatch <https://purl.org/bnfc/tid/3793> ;
    skos:prefLabel "Malerei"@de .
```

```
<https://purl.org/bnfc/tid/3793> dcterms:isPartOf <https://d-
nb.info/mapping/gnd/nsogg/target> ;
    skos:exactMatch <https://d-nb.info/gnd/4037220-0> ;
    skos:prefLabel "Pittura"@it .
```

Examples in the test file:

```
| authorities-gnd-nsogg_TESTDATEN.jsonld
| authorities-gnd-nsogg_TESTDATEN.nt
| authorities-gnd-nsogg_TESTDATEN.rdf
| authorities-gnd-nsogg_TESTDATEN.ttl
```

In future, the respective dump will be made available at <https://data.dnb.de/opendata/> using the following name:

```
mapping-authorities-gnd-nsogg_lds_{datum}.FORMAT.gz
```

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<sup>33</sup> <https://thes.bnfc.firenze.sbn.it/>

<sup>34</sup> <https://www.bnfc.firenze.sbn.it/>

<sup>35</sup> <https://fid-romanistik.de/ueber-uns>

## 4.1.5. GND - TheSoz

The mapping between the social sciences section of the GND (sociology, society, labour, social history) and the Thesaurus for the Social Sciences (TheSoz)<sup>36</sup>, the central subject heading vocabulary for research literature and project data in the social sciences, is maintained and made accessible as part of an ongoing cooperation between the DNB and the Leibniz Institute for the Social Sciences (GESIS)<sup>37</sup>.

Example:

```
@prefix skos: <http://www.w3.org/2004/02/skos/core#> .
@prefix dcterms: <http://purl.org/dc/terms/> .

<https://d-nb.info/gnd/4001220-7> dcterms:isPartOf <https://d-
nb.info/datasets/authorities> ;
    skos:inScheme <https://d-nb.info/datasets/authorities> ;
    skos:exactMatch <http://lod.gesis.org/thesoz/concept_10035049> ;
    skos:prefLabel "Alkoholismus"@de .

<http://lod.gesis.org/thesoz/concept_10035049> dcterms:isPartOf <https://d-
nb.info/mapping/gnd/thesoz/target> ;
    skos:exactMatch <https://d-nb.info/gnd/4001220-7> ;
    skos:prefLabel "Alkoholismus"@de .
```

Examples in the test file:

```
| authorities-gnd-thesoz_TESTDATEN.jsonld
| authorities-gnd-thesoz_TESTDATEN.nt
| authorities-gnd-thesoz_TESTDATEN.rdf
| authorities-gnd-thesoz_TESTDATEN.ttl
```

In future, the respective dump will be made available at <https://data.dnb.de/opendata/> using the following name:

```
mapping-authorities-gnd-thesoz_lds_{datum}.FORMAT.gz
```

## 4.2. Entity Facts profile

- | Addition:  
the alternative names of persons and families specified in detail in subfield \$4 of MARC field 400 using a GND code for relationships (nafr, nasp, navo) are now transported in Entity Facts under the new keys "earlierName", "laterName" and "completeName".

Example: Extract from <https://hub.culturegraph.org/appr/entityfacts/11539396X>

```
"preferredName" : "Karin Michaëlis",
"surname" : "Michaëlis",
"forename" : "Karin",
"@type" : "person",
"earlierName" : [ "Karin Bech-Brøndum", "Katharina Bech Brøndum" ],
"laterName" : [ "Karin Stangeland" ],
```

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<sup>36</sup> <https://lod.gesis.org/thesoz/de/>

<sup>37</sup> <https://www.gesis.org/en/home>

```

"variantName" : [ "Karin Michaelis", "Karin Michaelis-Stangeland", "Karin
Michaelis-Stangeland", "Karin Michaelis-Stangeland", "Karin Michaelis
Stangeland", "Karin Michaelis Stangeland", "Katharina M. Michaelis", "Karin
Bech-Brøndum", "Karin Bech Brøndum" ],
"pseudonym" : [ {
  "preferredName" : "Edmond Ralph"
} ],

```

Example: Extract from <https://hub.culturegraph.org/appr/entityfacts/131894161>

```

"preferredName" : "Alvin C. Eurich",
"surname" : "Eurich",
"forename" : "Alvin C.",
"@type" : "person",
"completeName" : [ "Alvin Christian Eurich" ],
"dateOfBirth" : "1902",
"dateOfDeath" : "1987",

```

## 5. Examples and further information

In the course of the next few days the following example files, including the announced changes, can be accessed in the serialisation formats RDF/XML, Turtle and JSON-LD by visiting <https://data.dnb.de/testdat/> :

```

| authorities-gnd-agrovoc_TESTDATEN.jsonld
| authorities-gnd-agrovoc_TESTDATEN.nt
| authorities-gnd-agrovoc_TESTDATEN.rdf
| authorities-gnd-agrovoc_TESTDATEN.ttl

| authorities-gnd-embne_TESTDATEN.jsonld
| authorities-gnd-embne_TESTDATEN.nt
| authorities-gnd-embne_TESTDATEN.rdf
| authorities-gnd-embne_TESTDATEN.ttl

| authorities-gnd-lcsh-rameau_TESTDATEN.jsonld
| authorities-gnd-lcsh-rameau_TESTDATEN.nt
| authorities-gnd-lcsh-rameau_TESTDATEN.rdf
| authorities-gnd-lcsh-rameau_TESTDATEN.ttl

| authorities-gnd-nsogg_TESTDATEN.jsonld
| authorities-gnd-nsogg_TESTDATEN.nt
| authorities-gnd-nsogg_TESTDATEN.rdf
| authorities-gnd-nsogg_TESTDATEN.ttl

| authorities-gnd-thesoz_TESTDATEN.jsonld
| authorities-gnd-thesoz_TESTDATEN.nt
| authorities-gnd-thesoz_TESTDATEN.rdf
| authorities-gnd-thesoz_TESTDATEN.ttl

| EntityFactsTestRelease2023_02.jsonld (JSON-LD only)

```



All the information regarding the German National Library's Linked Data Service can be found on our website<sup>38</sup>.

If you have any questions please do not hesitate to mail us at [metadatendienste@dnb.de](mailto:metadatendienste@dnb.de).

Yours faithfully

on behalf of Deutsche Nationalbibliothek (German National Library)

Letitia Mölck (Information Infrastructure)  
and Uta Ackermann (Digital Services)

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<sup>38</sup> <https://www.dnb.de/EN/lds>