

15 November 2017

## Data Service: Changes in the RDF format from 16 January 2018 (Export Release 2018.01)

### 1. Release schedule

Dear Sir or Madam

As part of the scheduled export format release planning<sup>1</sup> of the German National Library (DNB), the next changes in the conversion and the data modelling will take place on 16 January 2018. (There may be disruptions to the interfaces and the Data Shop between 08:00 and 12:00 noon on the day of the technical changeover.)

### 2. Linked Data Service - General

Mirroring the schedule of the export releases, updated full copies of the Integrated Authority File (GND<sup>2</sup>) and the bibliographic data of the DNB will be made available for downloading in the RDF/XML, Turtle and JSON-LD serialisation forms and also, in test form, as an HDT file in February, June and October<sup>3</sup>. The full copies of the bibliographic data of the German Union Catalogue of Serials (ZDB) are updated each March and September.

### 3. GND ontology changes

- | Revision: The class "gndo:Expression" is being introduced as `rdfs:subClassOf` `gndo:Work`.

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<sup>1</sup> <https://wiki.dnb.de/x/wgcbBQ>

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

<sup>3</sup> <https://data.dnb.de/opendata/>

- | Revision: four new "owl:AnnotationProperty" properties have been introduced with the range "rdfs:Literal":
  - o gndo:abbreviatedNameForTheCorporateBody
    - Domain: gndo:CorporateBody
    - rdfs:subPropertyOf – gndo:variantNameForTheCorporateBody
  - o gndo:abbreviatedNameForTheConferenceOrEvent
    - Domain: gndo:ConferenceOrEvent
    - rdfs:subPropertyOf – gndo:variantNameForTheConferenceOrEvent
  - o gndo:abbreviatedNameForTheWork
    - Domain: gndo:Work
    - rdfs:subPropertyOf – gndo:variantNameForTheWork
  - o gndo:abbreviatedNameForThePlaceOrGeographicName
    - Domain: gndo:PlaceOrGeographicName
    - rdfs:subPropertyOf – gndo:variantNameForThePlaceOrGeographicName

## 4. GND conversion changes

- | Correction: The property "gndo:academicDegree" is defined as an owl:DatatypeProperty and can therefore only feature literals in the object position. At present a GND-URI is occasionally delivered in the object position, but this has now been resolved. (Examples in the test files: <http://d-nb.info/gnd/100095089>, <http://d-nb.info/gnd/1048454959>)
- | Improvement: Up to now, all familial relationships between "gndo:Person" GND entities were expressed by the property "gndo:familyRelationship" without being further specified. More precise details of the type of familial relationship (where the structure of the database permits) are now given in addition by Agent Relationship Ontology (AgRelOn<sup>4</sup>) properties. These include the following individual properties:
  - o agrelon:hasParent
  - o agrelon:hasChild
  - o agrelon:hasSpouse
  - o agrelon:hasSibling
  - o agrelon:hasGrandParent
  - o agrelon:hasGrandChild
  - o agrelon:hasNieceNephew
  - o agrelon:hasAuntUncle
- | Improvement: Similar to the previous point, a number of other relationships between persons are also expressed more precisely in addition to statements with the property "gndo:acquaintanceshipOrFriendship". These include the following individual properties:
  - o agrelon:hasFriend
  - o agrelon:hasColleague
  - o agrelon:hasTeacher
  - o agrelon:hasStudent

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<sup>4</sup> <http://d-nb.info/standards/elementset/agrelon>

Examples in the test files (for both previous points):

<http://d-nb.info/gnd/136236634>, <http://d-nb.info/gnd/131450158>,  
<http://d-nb.info/gnd/129330590>, <http://d-nb.info/gnd/128961562>,  
<http://d-nb.info/gnd/128615818>, <http://d-nb.info/gnd/128379618>,  
<http://d-nb.info/gnd/128348380>, <http://d-nb.info/gnd/128256583>,  
<http://d-nb.info/gnd/118540238>, <http://d-nb.info/gnd/114111316>,  
<http://d-nb.info/gnd/1085674878>, <http://d-nb.info/gnd/1055143998>,  
<http://d-nb.info/gnd/1053295170>, <http://d-nb.info/gnd/1052607314>,  
<http://d-nb.info/gnd/1052497772>, <http://d-nb.info/gnd/1052206239>,  
<http://d-nb.info/gnd/1052115756>, <http://d-nb.info/gnd/1052088015>,  
<http://d-nb.info/gnd/1052087175>, <http://d-nb.info/gnd/1024824454>,  
<http://d-nb.info/gnd/1013937848>, <http://d-nb.info/gnd/136236634>

- | Improvement: The database can contain information stating that variant name forms of the entity types "gndo:CorporateBody", "gndo:ConferenceOrEvent", "gndo:Work" and "gndo:PlaceOrGeographicName" are abbreviations. To allow this to be considered by applications, e.g. for retrieval, we now deliver the name forms with the properties newly created ([see above](#)):
  - gndo:abbreviatedNameForTheCorporateBody
  - gndo:abbreviatedNameForTheConferenceOrEvent
  - gndo:abbreviatedNameForTheWork
  - gndo:abbreviatedNameForThePlaceOrGeographicName.

At the same time we are discontinuing delivery of these name forms with the properties "gndo:variantNameForThe ...".

Examples in the test files:

<http://d-nb.info/gnd/4001761-8>, <http://d-nb.info/gnd/326-8>,  
<http://d-nb.info/gnd/16330-2>, <http://d-nb.info/gnd/333-5>

- | Revision: "gndo:Expression" (rdfs:subClassOf gndo:Work) GND entities are being introduced. They can contain a statement on content type with "rdau:P60049".

Examples in the test files:

<http://d-nb.info/gnd/1114685070>, <http://d-nb.info/gnd/1041852010>  
<http://d-nb.info/gnd/7853743-5>

# 5. Changes in the conversion of the bibliographic data of the German National Library and the German Union Catalogue of Serials

## 5.1. Integration of German Music Archive data in the Linked Data Service

Revision: the data of the German Music Archive (DMA)<sup>5</sup> (and thereby series M and T of the Deutsche Nationalbibliografie<sup>6</sup>) are supplemented in the Linked Data Service. This results in the following new RDF elements:

- | There are two new types of resource: Printed music and music publications. This is expressed in `rdf:type` statements with the RDF classes "`void:Score`<sup>7</sup>" and "`schema:MusicRelease`<sup>8</sup>".
- | Music publications are described with the following statements in addition to those already used in the RDF representation of bibliographic data:
  - The music label is given, using the property "`schema:recordLabel`<sup>9</sup>". No separate RDF representation currently exists for the music label entity type. Some descriptive elements (`gndo:preferredName`, `mo:lc`) are delivered as a blank node in the RDF document of the linking resource (music publication). Example:

```
@prefix schema: <http://schema.org/> .
@prefix mo: <http://purl.org/ontology/mo/> .
@prefix gndo: <http://d-nb.info/standards/elementset/gnd#> .
<http://d-nb.info/358939844> schema:recordLabel [
  mo:lc "05863" ;
  a mo:Label ;
  gndo:preferredName "Synthetic Product Records"
] .
```
  - Publishing, production and order numbers for music labels are transported as a literal with the property "`schema:productID`<sup>10</sup>". The form of the literal is usually "`<Labelname> (LC <Labelcode>) <Number> (<Miscellaneous>)`" (with the label code and the "Miscellaneous" element optional). Two examples:

```
<http://d-nb.info/358939844> schema:productID "Synthetic Product
Records (LC 05863) SPR 028" .
<http://d-nb.info/352460113> schema:productID "Nektar CD 68.945
(Tropical)" , "883.575 (Aris)" .
```
  - Universal Product Codes (UPCs) are transported in the property "`schema:gtin13`<sup>11</sup>". 12-figure UPCs are extended by the prefix zero.

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<sup>5</sup> <http://www.dnb.de/EN/dma>

<sup>6</sup> <http://www.dnb.de/EN/nationalbibliografie>

<sup>7</sup> <http://vivoweb.org/ontology/core#Score>

<sup>8</sup> <http://schema.org/MusicRelease>

<sup>9</sup> <http://schema.org/recordLabel>

<sup>10</sup> <http://schema.org/productID>

<sup>11</sup> <http://schema.org/gtin13>

- The property "rdau:P60470<sup>12</sup>" ("has note on resource") transports e.g.:
    - Details of production client in free-text form (always in German)  
Test data: <http://d-nb.info/35749931X>, <http://d-nb.info/357161440>
    - Physical and technical details in free-text form (always in German) such as the playing speed of gramophone records (in rpm), SPARS codes<sup>13</sup> (e.g. DDD, ADD ...) or the audio format (e.g. mono, stereo, surround).  
Test data: <http://d-nb.info/351283188>, <http://d-nb.info/1043357939>, <http://d-nb.info/1006178430>
  - Maxi single CD publications are assigned the value "schema:SingleRelease" by the property "schema:albumReleaseType<sup>14</sup>".
  - MP3 music publications are assigned the value "https://www.iana.org/assignments/media-types/audio/mpeg" by "schema:encodingFormat<sup>15</sup>".
- | The following statements are included to describe specifically printed music:
- The music publisher is identified by the property "marcRole:pbl<sup>16</sup>". Music publishers are not represented by GND entities and currently no separate RDF representation exists for the music publisher entity type. Some descriptive elements (gndo:preferredName, schema:place, rdf:type mo:CorporateBody) are delivered as a blank node in the RDF document of the linking resource (music publication).  
NB: In contrast to the publisher's name which is transported in parallel by "dc:publisher", this is the uniquely identified company which is legally required to submit works to the DNB<sup>17</sup>.  
Example:  
@prefix marcRole: <<http://id.loc.gov/vocabulary/relators/>> .  
@prefix schema: <<http://schema.org/>> .  
@prefix gndo: <<http://d-nb.info/standards/elementset/gnd#>> .  
<<http://d-nb.info/1023145464>> marcRole:pbl [  
  schema:location "Kempten" ;  
  gndo:preferredName "Concertino-Barocco-Verlag" ;  
  a <http://purl.org/ontology/mo/CorporateBody>  
  ].
  - Series are linked by the property "dcterms:isPartOf". Initially, they are described in blank nodes (NB: this is a variation from other resource types than printed music where there is usually a URI of the German Union Catalogue of Serials (ZDB) in the data set available).

<sup>12</sup> <http://rdaregistry.info/Elements/u/P60470>

<sup>13</sup> [https://en.wikipedia.org/wiki/SPARS\\_code](https://en.wikipedia.org/wiki/SPARS_code)

<sup>14</sup> <http://schema.org/albumReleaseType>

<sup>15</sup> <http://schema.org/encodingFormat>

<sup>16</sup> <http://id.loc.gov/vocabulary/relators/pbl>

<sup>17</sup> <http://www.dnb.de/collectionmandate>

Example:

```
@prefix dcterms: <http://purl.org/dc/terms/> .
@prefix rdau: <http://rdaregistry.info/Elements/u/> .
@prefix bibo: <http://purl.org/ontology/bibo/> .
<http://d-nb.info/350008213> dcterms:isPartOf [
  dcterms:title "Playstrings" ;
  rdau:P60517 "easy" ;
  a bibo:Series
].
```

- The International Standard Music Number<sup>18</sup> (ISMN) is expressed by the property "dnbt:ismn<sup>19</sup>".
- | The music publication form (e.g. "score", "part", ...) is expressed by hyperlinks to subject headings of the GND by the property "rdau:P60488<sup>20</sup>" (has format of notated music).
  - Further details for arrangements, transcriptions (test data: <http://d-nb.info/1053991703>, <http://d-nb.info/1078402132>)
  - Further details for selection, version, alternatives (test data: <http://d-nb.info/359142052>, <http://d-nb.info/1096254530>)

| DMA test data:

```
http://d-nb.info/1024300943; http://d-nb.info/107870077X
http://d-nb.info/1101946660; http://d-nb.info/1081028882
http://d-nb.info/351283188; http://d-nb.info/351300368
http://d-nb.info/350437998; http://d-nb.info/358939844
http://d-nb.info/351285636; http://d-nb.info/353408123
http://d-nb.info/351791124; http://d-nb.info/1007533765
http://d-nb.info/1007709766; http://d-nb.info/1007738545
http://d-nb.info/35130648X; http://d-nb.info/351791124
http://d-nb.info/351283188; http://d-nb.info/355515547
http://d-nb.info/351990429; http://d-nb.info/352460113
http://d-nb.info/1102267341; http://d-nb.info/359228763
http://d-nb.info/1023145464; http://d-nb.info/359003648
http://d-nb.info/107800305X; http://d-nb.info/351283188
http://d-nb.info/107257750X; http://d-nb.info/1002649323
http://d-nb.info/1002649323; http://d-nb.info/354002848
http://d-nb.info/201376482; http://d-nb.info/800870735
http://d-nb.info/210961031; http://d-nb.info/364576812
http://d-nb.info/579745031; http://d-nb.info/210959061
http://d-nb.info/350000123; http://d-nb.info/353219703
http://d-nb.info/351287272; http://d-nb.info/580411109
http://d-nb.info/861081420; http://d-nb.info/351287272
http://d-nb.info/352286547; http://d-nb.info/1081040386
http://d-nb.info/1071159100; http://d-nb.info/350291098
http://d-nb.info/357372506; http://d-nb.info/357530276
http://d-nb.info/350956073; http://d-nb.info/1081040386
http://d-nb.info/1053991703; http://d-nb.info/1078402132
http://d-nb.info/359142052; http://d-nb.info/1096254530
```

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<sup>18</sup> [https://en.wikipedia.org/wiki/International\\_Standard\\_Music\\_Number](https://en.wikipedia.org/wiki/International_Standard_Music_Number)

<sup>19</sup> <http://d-nb.info/standards/elementset/dnb#ismn>

<sup>20</sup> <http://rdaregistry.info/Elements/u/P60488>

<http://d-nb.info/351283242>; <http://d-nb.info/350000395>  
<http://d-nb.info/352287284>; <http://d-nb.info/35889798X>

## 5.2. Other changes

- | Revision: The property "dcterms:license" references the licence of the resource.  
Examples in the test files: <http://d-nb.info/1132360471>,  
<http://d-nb.info/1132360560>

## 6. Sample files and other information

The following sample files, including the announced changes, can be retrieved in the serialisation forms RDF/XML, Turtle and JSON from <https://data.dnb.de/testdat>:

- | "GNDTestRelease2018\_1..." for GND authority data
- | "DNBTitelTestRelease2018\_1..." for DNB bibliographic data

Please bear in mind that the RDF resources in these files originate from RDA-catalogued records, from records containing RDA elements (mixed records) as well as from pure legacy data without RDA elements in order to document specific circumstances clearly.

Information on the Linked-Data-Service of the German National Library can be obtained on our website<sup>21</sup>.

Please do not hesitate to contact us should you have any questions.

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<sup>21</sup> <http://www.dnb.de/EN/lds>