
National Diet Library Newsletter

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Web NDL Authorities: Authority Data of the National Diet Library, Japan, as Linked Data
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"Linked Data in Libraries: Let's make it happen!")

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1. Introduction and background

The National Diet Library, Japan (NDL) had published its author name authority in book form since 1979. The NDL also started to provide its author name authority file as the *JAPAN/MARC (A)* based on the *UNIMARC authority format* in 1997. In January 2012, the NDL adopted the *MARC21 format* for the *JAPAN/MARC (A)* which also began to include all *NDL name authority records*. In other words, the *JAPAN/MARC (A)* currently contains not only personal names and corporate names but also family names, uniform titles, and geographic names.

In contrast to this, the *National Diet Library Subject Headings (NDLSH)*, whose first edition in book form dates back to 1964, is a Japanese controlled vocabulary list compiled and maintained by the NDL as a subject access tool. It is also used to search the *NDL catalog* by subject heading. The NDLSH has been plagued with a variety of problems, including a shortage of subject headings, a lack of see-also cross references, a vague citation order, and delays in releases. Nor was it a particularly easy means of searching the NDL catalog. The launch in 2004 of a revised NDLSH was the first step toward solving many of the above problems. This included making the NDLSH available in PDF file format from the NDL website, but even this was far from satisfactory for the Web environment. Thus, the NDL embarked on a new project to provide a more user-friendly controlled subject vocabulary on the Web.

A major turning point was reached in 2010, with the launch of *Web NDLSH*, a version of the NDLSH optimized for the Web. In 2012, Web NDLSH was expanded to provide name authority data and subject authority data as linked data on a single interface. The NDL is now offering *Web NDL Authorities* on its website, which provides all NDL authority data

as linked data.

2. The Web NDLSH

On June 30, 2010, the NDL launched the Web NDLSH, a web version of the NDLSH, to provide Japanese subject headings as linked data. The *Simple Knowledge Organization System* (SKOS) was used for Web NDLSH to make subject headings easier to use in the Web environment, thereby enabling their use in a variety of applications and systems on the Web. The SKOS data model is suitable for expressing controlled vocabularies such as subject headings, thesauri, and classification schemes within the framework of the Semantic Web, and is used for providing subject headings in other countries, like the *Library of Congress Subject Headings* (LCSH) provided by the *Library of Congress Linked Data Service*.

Web NDLSH provides the following services:

- Reference function to the URIs of subject headings by assigning a URI to each
- Download of each data item in three formats: RDF/XML, RDF/Turtle, and JSON
- Mechanical coordination with external systems that enable searching from external applications using SPARQL, an RDF query language
- Search by the *National Diet Library Classification* (NDLC) and the Nippon Decimal Classification (NDC) as well as by headings and references
- Graphical display of the NDLSH thesaurus structure
- Creation and display of links to the LCSH and Wikipedia when subject headings or terms correspond to each subject heading of the NDLSH

In connection with this launch, the NDL sponsored a seminar entitled "Semantic Web and Libraries: Toward an Era When Machines Read Information." Held on July 27th, 2010 and featuring two guest speakers, this seminar dealt with the concept of the Semantic Web and the introduction of Web NDLSH.

3. The Web NDL Authorities

The NDL expanded the Web NDLSH into a new service, intended to provide an RDF/linked data version of its name authority data in addition to subject headings. The beta version was released in July 2011, and the new service came into full operation in January 2012 as Web NDL Authorities. The service can be accessed from the following address: <http://id.ndl.go.jp/auth/ndla>.

The Web NDL Authorities is able to offer both subject authority data (subject headings and subject subdivisions) and name authority data (personal names, family names, corporate names, uniform titles and geographic names) as linked data on a single interface. (See Figure 1 and Figure 2.) More than one million authority records are available as linked data via the Web NDL Authorities system on the NDL website, and these records are updated automatically on a daily basis.

Web NDL Authorities

国立国会図書館典拠データ検索・提供サービス

キーワード検索 分類記号検索

検索語を入力してください 検索

すべて 名称のみ 普通件名のみ

Web NDL Authoritiesは、国立国会図書館で作成し、維持管理する典拠データを一元的に検索・提供するサービスです。サービスの概要については、「[Web NDL Authoritiesについて](#)」をご覧ください。

最新のお知らせ

- [漢字一文字とひらがな・カタカナが混在している典拠データの検索機能を改修しました](#) (2014年3月6日)
- [「国立国会図書館典拠データ検索・提供サービス\(Web NDL Authorities\)」の機能を拡張しました](#) (2012年12月13日)
- [「国立国会図書館典拠データ検索・提供サービス\(Web NDL Authorities\)」の本格サービスを開始しました](#) (2012年1月6日)
- [「国立国会図書館典拠データ検索・提供サービス\(Web NDL Authorities\)開発版」を公開しました](#) (2011年7月7日)

<<Figure 1: The top page of Web NDL Authorities (in Japanese)>>

Web NDL Authorities

国立国会図書館典拠データ検索・提供サービス

ヘルプ

村上春樹 の検索結果

検索対象: "村上春樹"

キーワード検索 分類記号検索

村上春樹 検索

すべて 名称のみ 普通件名のみ

▶ [すべて \(4件\)](#) 4件中 1 - 4 件目

▶ 個人名 (2件)	村上, 春樹, 1937-	個人名
▶ 家族名 (0件)	村上, 春樹, 1949-	個人名
▶ 団体名 (2件)	← Мураками, Харуки; Мураками, Харуки; Μουρακάμι, Χαρούκι	
▶ 地名 (0件)	台所だよむ村上春樹の会	団体名
▶ 統一タイトル (0件)	村上春樹研究会	団体名
▶ 普通件名 (0件)		
▶ 細目 (0件)		

4件中 1 - 4 件目

<<Figure 2: A search result for "村上春樹(MURAKAMI Haruki)" using the Web NDL Authorities. Two personal names and two corporate names were found. MURAKAMI Haruki, the well-known author, is the second entry in the list. The two corporate names are for study groups started by Murakami fans. >>

Many features of the Web NDL Authorities were inherited from the Web NDL SH:

- Reference to the URIs of headings by assigning a URI to each
- Download of each data item in RDF/XML, RDF/Turtle, and JSON
- Mechanical coordination with external systems that enable searching from external applications using SPARQL
- Search by headings or references as well as by NDLC or NDC for subject headings
- Graphical display of the NDLSH thesaurus structure
- Links to the LCSH and Wikipedia as well as the *Virtual International Authority File* (VIAF).

The vocabularies used in Web NDL Authorities include SKOS, FOAF, and Dublin Core. SKOS is used mainly for expressing subject authority data, while FOAF and other vocabularies are used mainly for name authority data. The *National Diet Library Dublin Core Metadata Description* (DC-NDL) is also used for expressing Yomi (Japanese transcription) in authority records. Yomi in Japanese is an essential access point. The DC-NDL is the NDL's own metadata schema based on the Dublin Core, and was designed to facilitate interoperation of metadata between libraries and related institutions in Japan. For personal names, family names, and corporate names, the RDF model consists of two levels of resources: one corresponding to the authority record and the other to the real world entity. (See Figure 3.) The URI assigned to the real world entity redirects to the URI of the authority record having the same heading.

```

_ <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:rdfs="http://www.w3.org/2000/01/rdf-
schema#" xmlns:owl="http://www.w3.org/2002/07/owl#" xmlns:skos="http://www.w3.org/2004/02/skos/core#"
xmlns:xl="http://www.w3.org/2008/05/skos-xl#" xmlns:rda="http://RDVocab.info/ElementsGr2/"
xmlns:frbrent="http://RDVocab.info/uri/schema/FRBEntitiesRDA/" xmlns:foaf="http://xmlns.com/foaf/0.1/"
xmlns:ndl="http://ndl.go.jp/dcndl/terms/" xmlns:dct="http://purl.org/dc/terms/">
_ <skos:Concept rdf:about="http://id.ndl.go.jp/auth/ndlna/00104237">
_ <foaf:primaryTopic>
_ <foaf:Person rdf:about="http://id.ndl.go.jp/auth/entity/00104237">
  <foaf:name>村上春樹</foaf:name>
  <rda:dateOfBirth>1949</rda:dateOfBirth>
  </foaf:Person>
  </foaf:primaryTopic>
  <dct:modified>2014-01-16T15:01:54</dct:modified>
  <dct:created>1981-03-16</dct:created>
_ <xl:prefLabel>
_ <rdf:Description>
  <xl:literalForm>村上, 春樹, 1949-</xl:literalForm>
  <ndl:transcription xml:lang="ja-Kana">ムラカミ, ハルキ, 1949-</ndl:transcription>
  <ndl:transcription xml:lang="ja-Latn">Murakami, Haruki, 1949-</ndl:transcription>
  </rdf:Description>
  </xl:prefLabel>
  <rdfs:label>村上, 春樹, 1949-</rdfs:label>
  <dct:source>風の歌を聴け</dct:source>
  <dct:source>文化人名録</dct:source>

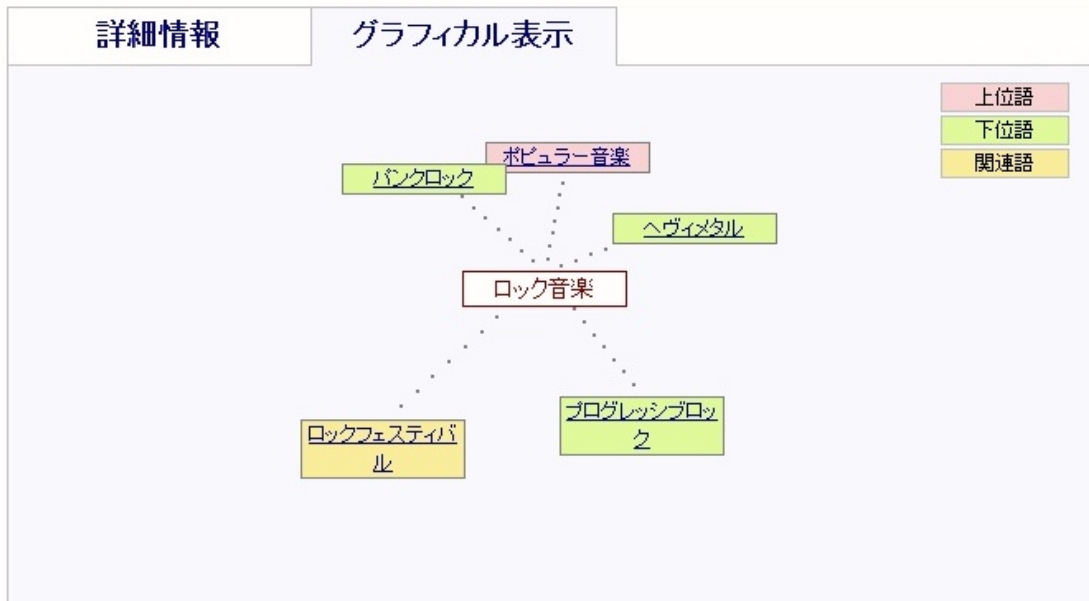
```

<<Figure 3: RDF model of the authority record "村上春樹(MURAKAMI Haruki)".

The "ja-Kana" in the "ndl:transcription" denotes Yomi. The "ndl:transcription" is a term of The National Diet Library Dublin Core Metadata Description (DC-NDL). >>

Web NDL Authorities is also capable of visualizing the NDLSH term thesaurus structure in the graphical display. Each of these graphics is clickable and the relationships can be explored. (See Figure 4.)

ロック音楽



<<Figure 4: NDLSH "ロック音楽(Rock music)" in the graphical display. This shows that: NDLSH Rock Music contains the subcategories "Progressive Rock," "Punk Rock," and "Heavy Metal"; it is itself a subcategory of the broader category Popular Music; and it is related to the term "Rock Festival.">>

4. Links to the LCSH

The NDLSH in Web NDL Authorities has links to the LCSH in the Library of Congress Linked Data Service. According to the 2004 revision of NDLSH, each NDLSH heading has an equivalent LCSH heading. Since 2009, the NDL has also been including the *LC Control Number* (LCCN) for equivalent LCSH headings into its subject authority files. Links from Web NDL Authorities to LCSH are generated by a URI including the LCCN of a LCSH heading in the LC's Linked Data Service. (See Figure 5.)

詳細情報	グラフィカル表示
ID	00569651
標目 (xi:prefLabel)	ロック音楽
同義語 (xi:altLabel)	ロックミュージック; Rock music
注記 (skos:note)	地理区分 (200408-)
上位語 (skos:broader)	ポップラー音楽
下位語 (skos:narrower)	パンクロック; プログレッシブロック; ヘヴィメタル
関連語 (skos:related)	ロックフェスティバル
分類記号 (skos:relatedMatch)	KD286 (NDLC); 764.7 (NDC9)
関連リンク (skos:closeMatch)	sh85114675 (LCSH) →

Library of Congress Linked Data Service: Rock music

From Library of Congress Subject Headings

URI(s)

- > <http://id.loc.gov/authorities/subjects/sh85114675>
- > info:lc/authorities/sh85114675
- > <http://id.loc.gov/authorities/subjects/sh85114675#concept>

<skos:closeMatch rdf:resource='http://id.loc.gov/authorities/subjects/sh85114675' />

<<Figure 5: NDLSH "ロック音楽" has a link to LCSH "Rock Music.">>

Certain subject heading lists, for example, le Répertoire d'autorité-matière encyclopédique et alphabétique unifié (RAMEAU) of la Bibliothèque nationale de France, hold equivalent LCSH headings for their headings. Therefore, it may be possible to create a list of French-English-Japanese multilingual subject headings.

5. Links to the VIAF

The NDL has been participating in the Virtual International Authority File (VIAF) since October 2012, and is the first VIAF contributor from East Asia. The NDL has been sending its name authority files to the VIAF on a monthly basis, and is also a member of the VIAF Council.

Since joining, the Web NDL Authorities has exchanged links with the VIAF. The links from Web NDL Authorities to the VIAF are generated by using a VIAF ID assigned to each NDL authority record within the VIAF. (See Figure 6.) Reciprocally, each NDL authority record on VIAF has a link to the corresponding record on the Web NDL Authorities.

The figure shows two side-by-side screenshots. The left screenshot is from 'Web NDL Authorities' and displays a record for '村上, 春樹, 1949-'. The '関連リンク出典' (Related Link Source) field contains the link 'NDL00104237 (VIAF)' with a red arrow pointing to the right. The right screenshot is from 'VIAF' and shows a search result for 'Murakami, Haruki, 1949-'. The VIAF ID '108238901' is visible, and a red arrow points from the VIAF ID field back to the NDL link in the left screenshot. Below the screenshots is a code block containing RDF triples that define the link between the NDL and VIAF records.

```

<rdf:s:label>村上, 春樹, 1949- </rdf:s:label>
<dct:source>風の歌を聴け</dct:source>
<dct:source>文化人名録</dct:source>
<skos:exactMatch rdf:resource="http://viaf.org/viaf/sourceID/NDL%7C00104237" />
<skos:inScheme rdf:resource="http://id.ndl.go.jp/auth#personalNames" />
  
```

<<Figure 6: NDL authority record "村上春樹" has a link to the VIAF.>>

Web NDL Authorities also links to Wikipedia. The links are generated neither by a URI nor by the Wikidata, but by using dynamic queries with literal heading values directly from the system.

6. Conclusion

Authority data are valuable assets for the library community as well as for other communities, such as archives, museums, and for users in the Web environment. Providing assets as linked data is an indispensable means for libraries to make them available in the Web environment; especially in the Semantic Web environment. With this goal in mind, the NDL now provides Web NDL Authorities. Web NDL Authorities provides NDL authority data as linked data. Web NDL Authorities also has links to other authority data, such as the VIAF and the LCSH. The NDL will continue to improve its provision of

linked data for users in the Web environment as well as for library users.

7. References

All references checked on November 17th, 2014.

- Web NDL Authorities (in Japanese): <http://id.ndl.go.jp/auth/ndla>
- The National Diet Library Dublin Core Metadata Description (DC-NDL) (in Japanese): <http://ndl.go.jp/jp/aboutus/standards/meta.html>
- The Library of Congress Linked Data Service: <http://id.loc.gov/>
- The Virtual International Authority File (VIAF): <http://viaf.org/>
- OSHIBA Tadahiko. "A service of the National Diet Library, Japan, to the semantic web community" at World Library and Information Congress - 77th IFLA General Conference and Assembly: <http://conference.ifla.org/past-wlic/2011/149-tadahiko-en.pdf>
- OSHIBA Tadahiko. "Web NDL Authorities and VIAF" at VIAF Council Meeting 2013: <http://www.oclc.org/events/2013/viaf-at-ifla.en.html>