Advanced uses of thesauri that are released with multiple services: Websites, APIs, and SPARQL endpoints

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From the exhibition of the Mogao Caves and the website of the exhibition, *Cave Temples of Dunhuang*, let’s start the exploration of information related to the Silk Road though the *Getty Thesaurus of Geographic Names (TGN)*.

http://www.getty.edu/research/exhibitions_events/exhibitions/cave_temples_dunhuang/index.html
Getty Thesaurus of Geographic Names (TGN) and other Getty vocabularies are available in multiple formats

-- Let’s see how to use them through three examples
Example 1

Learn through TGN Website

"Mogao Caves" =>
"Related geographic places"
located on .... "Silk Road"

Coordinates:
Lat: 40 02 01 N degrees minutes  Lat: 40.0335 decimal degrees
Long: 094 55 09 E degrees minutes  Long: 94.9192 decimal degrees

Note: System of over 735 caves, with manmade alterations and excavation; 492 caves are decorated; located outside of Dunhuang city. Carved and painted beginning in 4th century CE.

Names:
- Qianfodong (preferred, C,V,Chinese (transliterated Pinyin without tones),U)
- Mogao Caves (C,V,display,English-P,U,N)
- Mogao Grottoes (C,V,English,U,N)
- Mogao (C,V)
- Mokao Grottoes (C,V,English,U)
- Mogao Ku (C,V)
- Mògāo kū (C,V,Chinese (transliterated Pinyin),U)
- Caves of the Thousand Buddhas (C,V,English,U)
- Thousand Buddhas, Caves of the (C,V,English,U)
- Thousand Buddah Grottoes (C,V,English,U,N)
- Shibendin (C,V,Chinese (transliterated),U)
- Ch’ien-fu-tung-miao (C,V,Chinese (transliterated),U)
- Ch’ien-fu-tung (C,V,Chinese (transliterated),U)
- Ch’ien-fu-tung (C,V,Chinese (transliterated),U)
- Chenfudun (C,V,Chinese (transliterated),U)
- Moqiao (C,V,Chinese-P,U)
- Mogao ku (C,V,Chinese (transliterated),U)
- Qianfudong (C,V,Chinese (transliterated),U)
- 祥佛洞 (C,V,Chinese-U)

Place Types:
- ancient site (preferred, C)
- rock-cut architecture (C)
- World Heritage Site (C)
- historic site (C)
- caves (C)

Related geographic places:
- located on .... Silk Road .......... (road)
- .................. (World) [7031416]
- near/adjacent to .... Dunhuang .......... (inhabited place)
- ........................ (World, Asia, China, Gansu province) [7001969]
TGN gives us ...
Learn from these entities through TGN, one by one.
Learn from these entities through TGN, one by one, &,

If you want to download the dataset →
### Palmyra

Source: [http://vocab.getty.edu/tgn/7018835](http://vocab.getty.edu/tgn/7018835)

#### Download the dataset

- **All (83)**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Predicate</th>
<th>Object</th>
</tr>
</thead>
<tbody>
<tr>
<td>tgn:7018835</td>
<td>rdf:type</td>
<td>gvp:Subject</td>
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<tr>
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<td>tgn:18835</td>
<td>rdfs:label</td>
<td>خربط تدمير</td>
</tr>
</tbody>
</table>

**Inference**: Implicit only
### Mogao Caves

**Source:** [http://vocab.getty.edu/tgn/7029798](http://vocab.getty.edu/tgn/7029798)

- **Predicate**
  - rdf:type
  - rdfs:label
  - gvp:placeType
  - dcterms:replaces
  - skos:prefLabel
  - skos:altLabel
  - gvp:broader
  - gvp:broaderPartitiveExtended
  - gvp:broaderExtended
  - gvp:broaderPreferredExtended
  - skos:note
  - skos:broader
  - iso-thes:broaderPartitive
  - skos:related
  - skos:broaderTransitive

- **Object**
  - gvp:Subject, skos:Concept
  - Caves of the Thousand Buddhas@en, Ch‘ien-fu-tung@zh-latn, Ch‘ien-fu-tung-miao@zh-latn, Qianfudong@zh-latn, Mogao, Mogao Grottoes@en, Mogao Ku, Mogao ku@zh-latn, Mokao Grottoes@en, Mogao Grottoes@en, Mogao Caves@en, 莫高窟@zh, 千佛洞@zh

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**Download the dataset**

{[Download dataset](http://vocab.getty.edu/tgn/7029798?inference=implicit)}
Example 2.

Following these geographic places located on the Silk Road, using the geo-coordinates TGN provided, we get them on the map (through TGN’s API).
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APIs

**TGNWebServices**

**TGN Web Services**

The following operations are supported. For a formal definition, please review the WSDL documents:

- **TGNGetChildren**
  Return all immediate children of a given subject record

- **TGNGetMergedSubjectID**
  Return a list of records with old and new IDs that have been merged

- **TGNGetParents**
  Return parent hierarchy for a given subject record

- **TGNGetRevisionHistory**
  Return info on edits made within certain data based on input parameter

- **TGNGetSubject**
  Return all data element associated with a VCS subject

- **TGNGetSubjectBriefReports**
  Returns subset of data elements associated with a VCS subject

- **TGNGetSubjectTerms**
  Return termID and all terms based on subjectID

- **TGNGetSyncSubjectID**
  Return current subject ID for a given subject ID

- **TGNGetTermMatch**
  Return result count, preferred term and matching terms

**Test**

To test the operation using the HTTP POST protocol, click the 'Invoke' button.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>subjectID</td>
<td>7031416</td>
</tr>
</tbody>
</table>

**SOAP 1.1**

The following is a sample SOAP 1.1 request and response.

**SOAP 1.2**

The following is a sample SOAP 1.2 request and response.
Example 2.
Following these geographic places located on the Silk Road, using the geo-coordinators TGN provided, we get them on the map (through TGN’s API).
... find places in a boundary (through the “near/adjacent to” relationship provided by TGN)
... launch the search for museums’ collections through a place on the map.
“Palmyra”

The Cleveland Museum of Art:

Europeana:

MET:
“Dunhuang”

Europeana:

MET:

Collection / 39 results for "palmyra" out of 442,297 records

Collection / 22 results for "Dunhuang" out of 441,819 records
... or connect with Wikipedia, Europeana, or Google Arts & Culture (which features content from over 1200 leading museums and archives)
Procedures

(1) Obtain the "Silk Road" **ID** from TGN;
(2) Using the **ID** to request through Getty Vocabularies Web Services **APIs** to get data of locations related to the "Silk Road"; obtain the datasets in XML format;
(3) Extract *preferred name, non-prefer name, type of place*, and *Coordinates* from **XML file**; store data in the **PostgreSQL** spatial database;
(4) Present data on and interact with the defined geographical area on the map using **Google Map API**.
Example 3

Find certain place types around the Silk Road through a **LOD Sparql Query platform**

**http://vocab.getty.edu/**

I would like to get something like "caves on or around the Silkroad", or, "UNESCO Heritage sites on or around the Silkroad".

All these place types are defined in the Getty Art and Architecture Thesaurus (AAT)
Go to: http://vocab.getty.edu/

Choose “Queries”

4.18 Places by Type Within Bounding Box

Let’s specialize the previous query and look for castles around The Netherlands, we get 170:

```
prefix ontogo: <http://www.ontotext.com/owlim/geo#>
select distinct * {
    place skos:inScheme tgn: ;
    gvp:placeType1(gvp:placeType/gvp:broadestGenericExtended) [rdfs:label "castles (fortifications)"
    @en]
    gvp:focus [ontogo:within(50.78185 3.389722 53.542265 7.169019)];
    gvp:prefLabelGVP [xl:literalForm ?name];
    gvp:parentString ?parents
}
```
Select distinct * {
    ?place skos:inScheme tgn:
    gvp:placeType | (gvp:placeType/gvp:broaderGenericExtended) [rdfs:label "caves"@en];
    foaf:focus [ontogeo:within(24.75083 28.95778 43.80722 108.92861)];
    gvp:prefLabelGVP [xl:literalForm ?name];
    gvp:parentString ?parents}

Query a specific place type (e.g., caves) in a geographic boundary

Replace the place type you choose, put your geo coordinators
Query a specific place type (e.g., caves) in a geographic boundary

Got the results & downloadable datasets:

<table>
<thead>
<tr>
<th>place</th>
<th>name</th>
<th>parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>tgn:8060332</td>
<td>Bezeklik Thousand Buddha Caves</td>
<td>Xinjiang Uygur Zizhiqu, Zhongguo, Asia, World</td>
</tr>
<tr>
<td>tgn:8289876</td>
<td>Pazikelike Qianfo Dong@zh-latn-pinyin-x-notone</td>
<td>Xinjiang Uygur Zizhiqu, Zhongguo, Asia, World</td>
</tr>
<tr>
<td>tgn:6001819</td>
<td>Dzhruchula</td>
<td>lost &amp; found/Georgia, Sakartvelo, Asia, World</td>
</tr>
<tr>
<td>tgn:7679819</td>
<td>Büyük Laçın Mağarasi@tr</td>
<td>Çorum, Türkiye, Asia, World</td>
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<tr>
<td>tgn:7689482</td>
<td>Sorgun Köyü Kaya@tr</td>
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<tr>
<td>tgn:7690392</td>
<td>Fok Mağarasi@en</td>
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<td>tgn:7691901</td>
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<td>Ankara, Türkiye, Asia, World</td>
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<td>tgn:7687910</td>
<td>Pazarlı Mağarasi@en</td>
<td>Çorum, Türkiye, Asia, World</td>
</tr>
</tbody>
</table>
Query a specific place type (e.g., World Heritage Sites) in a geographic boundary. Got the results & downloadable datasets:

World Heritage Sites within (24.75083 28.95778 43.80722 108.92861)
Summary

1. Learn through TGN Website
   [http://www.getty.edu/research/tools/vocabularies/tgn/](http://www.getty.edu/research/tools/vocabularies/tgn/)
   (Anyone can do!)

2. Following these geographic places located on the Silk Road, using the geo-coordinators TGN provided, get them on the map (through TGN’s API).
   (Need someone who can play with API and write a little bit Java.)
   – The APIs are available to any institution having a login, which may be obtained by writing to vocab@getty.edu. See details in the Web Services User’s Instructions (PDF).

3. Find certain place types around the Silk Road through a LOD Sparql Query platform
   [http://vocab.getty.edu/](http://vocab.getty.edu/)
   (Anyone can use the template to query; follow our simple demos; knowledge of SPARQL queries will be ideal.)
Questions?

Advanced uses of thesauri that are released with multiple services: Websites, APIs, and SPARQL endpoints

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