

Advanced OpenRefine Techniques Using the Getty Vocabularies

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OpenRefine ID Sync Example Using XML Web Services

1. Create a new column using “Add column by fetching URLs...”

DISPLAYNAME	ULAN ID	Pref Term	FIRSTNAME	LASTNAME	BEGINDATE	EN
Maxwell Hamilton <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Maxwell, Hamilton (24) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Hamilton, Maxwell, Inc. (23) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Fry, Edwin Maxwell (14) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Bates, Maxwell (14) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Maxwell, John (14) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item		ll, Hamilton	Maxwell	Hamilton	0	
Charles Aubry <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Charles (34) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Charles (33) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Emile (18) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Louis (18) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, René Marcel (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item					1811	
Fédèle Azari <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Azari, Fedele (19) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Āzarī Isfarāyīnī, Ĥamzah ibn 'Alī Malik (5) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item	500103519	Azari,			1895	
František Vobecký <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Vobecký, František (43) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Schmoranz, František (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Fišer, František (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Kadlec, František (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Kysela, František (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item	500028103	Vobec			1902	

- Facet
- Text filter
- Edit cells
- Edit column
 - Split into several columns...
 - Add column based on this column...
 - Add column by fetching URLs...
 - Add columns from reconciled values...
- Transpose
- Sort...
- View
 - Add columns from reconciled values...
- Reconcile
 - Rename this column
 - Remove this column
 - Move column to beginning
 - Move column to end
 - Move column left
 - Move column right

2. Define column name and input GREL expression:

'http://vocabsservices.getty.edu/ULANService.asmx/ULANGetSyncSubjectID?subjectID='+value

Add column by fetching URLs based on column ULAN ID

New column name Throttle delay milliseconds

On error set to blank store error Cache responses

HTTP headers to be used when fetching URLs: [Show](#)

Formulate the URLs to fetch:

Expression Language No syntax error.

Preview History Starred Help

row	value	'http://vocabsservices.getty.e ...
1.	500299270	http://vocabsservices.getty.edu/ULANService.asmx/ULANGetSyncSubjectID?subjectID=500299270
2.	500029715	http://vocabsservices.getty.edu/ULANService.asmx/ULANGetSyncSubjectID?subjectID=500029715
3.	500103519	http://vocabsservices.getty.edu/ULANService.asmx/ULANGetSyncSubjectID?subjectID=500103519
4.	500028103	http://vocabsservices.getty.edu/ULANService.asmx/ULANGetSyncSubjectID?subjectID=500028103

OK Cancel

Resulting XML



DISPLAYNAME	ULAN ID	Sync ID
Maxwell Hamilton edit <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Maxwell, Hamilton (24) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Hamilton, Maxwell, Inc. (23) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Fry, Edwin Maxwell (14) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Bates, Maxwell (14) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Maxwell, John (14) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item	500299270	<pre><?xml version="1.0" encoding="utf-8"?> <Vocabulary xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="http://vocabsservices.getty.edu/Schemas/ULAN/ULANGetSyncSubjectId.xsd"> <Current_Subject_ID>500299270</Current_Subject_ID> </Vocabulary></pre>
Charles Aubry <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Charles (34) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Charles (33) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Emile (18) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Louis (18) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, René Marcel (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item	500029715	<pre><?xml version="1.0" encoding="utf-8"?> <Vocabulary xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="http://vocabsservices.getty.edu/Schemas/ULAN/ULANGetSyncSubjectId.xsd"> <Current_Subject_ID>500029715</Current_Subject_ID> </Vocabulary></pre>
Fédèle Azari <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Azari, Fedele (19) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Āzari Isfarāyini, Ḥamzah ibn 'Alī Malik (5) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item	500103519	<pre><?xml version="1.0" encoding="utf-8"?> <Vocabulary xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="http://vocabsservices.getty.edu/Schemas/ULAN/ULANGetSyncSubjectId.xsd"> <Current_Subject_ID>500103519</Current_Subject_ID> </Vocabulary></pre>
František Vobecký	500028103	<pre><?xml version="1.0" encoding="utf-8"?></pre>

3. Parse XML using “Transform...”

DISPLAYNAME	ULAN ID	Sync ID
Maxwell Hamilton <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Maxwell, Hamilton (24) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Hamilton, Maxwell, Inc. (23) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Fry, Edwin Maxwell (14) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Bates, Maxwell (14) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Maxwell, John (14) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item	500299270	Facet Text filter Edit cells Edit column Transpose Sort... View Reconcile
Charles Aubry <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Charles (34) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Charles (33) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Emile (18) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Louis (18) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, René Marcel (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item	500029715	Transform... Common transforms Fill down Blank down Split multi-valued cells... Join multi-valued cells... Cluster and edit... Replace
Fédèle Azari <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Azari, Fedele (19) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Āzarī Isfarāyīnī, Hamzah ibn 'Alī Malīk (5) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item	500103519	<pre><?xml version="1.0" encoding="utf-8"?> <Vocabulary xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="http://vocabservices.getty.edu/Schemas/ULAN/ULANGetSyncSubjectId.xsd"> <Current_Subject_ID>500103519</Current_Subject_ID> </Vocabulary></pre>
František Vobecký <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Vobecký František	500028103	<pre><?xml version="1.0" encoding="utf-8"?> <Vocabulary xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"</pre>

4. Transform GREL expression:

`value.parseXml().select('Vocabulary')[0].select('Current_Subject_ID')[0].ownText()`

Custom text transform on column Sync ID

Expression Language

`value.parseXml().select('Vocabulary')[0].select('Current_Subject_ID')[0].ownText()` No syntax error.

[Preview](#) [History](#) [Starred](#) [Help](#)

row	value	value.parseXml().select("Vocab ...
1.	<pre><?xml version="1.0" encoding="utf-8"?> <Vocabulary xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="http://vocabsservices.getty.edu/Schemas/ULAN/ULANGetSyncSubjectId.xsd"> <Current_Subject_ID>500299270</Current_Subject_ID> </Vocabulary></pre>	500299270
2.	<pre><?xml version="1.0" encoding="utf-8"?> <Vocabulary xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="http://vocabsservices.getty.edu/Schemas/ULAN/ULANGetSyncSubjectId.xsd"> <Current_Subject_ID>500029715</Current_Subject_ID> </Vocabulary></pre>	500029715

On error keep original set to blank store error Re-transform up to times until no change

Sync Column becomes current ULAN ID



DISPLAYNAME	ULAN ID	Sync ID
Maxwell Hamilton <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Maxwell, Hamilton (24) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Hamilton, Maxwell, Inc. (23) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Fry, Edwin Maxwell (14) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Bates, Maxwell (14) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Maxwell, John (14) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item	500299270	500299270
Charles Aubry <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Charles (34) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Charles (33) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Emile (18) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Louis (18) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, René Marcel (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item	500029715	500029715
Fédèle Azari <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Azari, Fedele (19) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Āzarī Isfarāyīnī, Ḥamzah ibn 'Alī Malik (5) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item	500103519	500103519
František Vobecký <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Vobecký, František (43) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Schmoranz, František (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Fišer, František (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Kadlec, František (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Kysela, František (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item	500028103	500028103

OpenRefine Data Enrichment Example Using Full XML from Web Service

1. Get full XML by adding column based on synced ULAN ID, and input formula:
'http://vocabsservices.getty.edu/ULANService.asmx/ULANGetSubject?subjectId='+value

Add column by fetching URLs based on column Sync ID

New column name Throttle delay milliseconds

On error set to blank store error Cache responses

HTTP headers to be used when fetching URLs: [Show](#)

Formulate the URLs to fetch:

Expression Language

Preview History Starred Help

row	value	'http://vocabsservices.getty.e ...
1.	500299270	http://vocabsservices.getty.edu/ULANService.asmx/ULANGetSubject?subjectId=500299270
2.	500029715	http://vocabsservices.getty.edu/ULANService.asmx/ULANGetSubject?subjectId=500029715
3.	500103519	http://vocabsservices.getty.edu/ULANService.asmx/ULANGetSubject?subjectId=500103519
4.	500028103	http://vocabsservices.getty.edu/ULANService.asmx/ULANGetSubject?subjectId=500028103

Full XML in OpenRefine Cell

DISPLAYNAME	ULAN ID	Sync ID	ULAN XML
Maxwell Hamilton <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Maxwell, Hamilton (24) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Hamilton, Maxwell, Inc. (23) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Fry, Edwin Maxwell (14) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Bates, Maxwell (14) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Maxwell, John (14) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item	500299270	500299270	<pre> <?xml version="1.0" encoding="utf-8"?> <Vocabulary xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="http://vocabsservices.getty.edu/Schemas/ULAN/ULANGetSubject.xsd"> <Subject Subject_ID="500299270"> <Parent_Relationships> <Preferred_Parent> <Parent_Subject_ID>500000002</Parent_Subject_ID> <Relationship_Type>Parent/Child</Relationship_Type> <Historic_Flag>Undetermined</Historic_Flag> <Parent_String>Persons, Artists [500000002]</Parent_String> <Hier_Rel_Type>Instance-BTI</Hier_Rel_Type> </Preferred_Parent> </Parent_Relationships> <Descriptive_Notes> <Descriptive_Note> <Note_Text>Comment on works: landscape</Note_Text> <Note_Language>English</Note_Language> <Note_Contributors> <Note_Contributor> <Contributor_id>2500000011/PROV</Contributor_id> </Note_Contributor> </Note_Contributors> <Note_Sources> <Note_Source> <Source> <Source_ID>2100043316/Provenance Index Databases, Authority file (1985-)</Source_ID> </Source> </Note_Source> </Note_Sources> </Descriptive_Note> </Descriptive_Notes> <Record_Type>Person</Record_Type> <Merged_Status>Merged</Merged_Status> <Terms> <Preferred_Term> <Term_Text>Maxwell, Hamilton</Term_Text> <Display_Name>Index</Display_Name> <Historic_Flag>N/A</Historic_Flag> <Vernacular>Undetermined</Vernacular> <Term_ID>1500668205</Term_ID> <Term_Languages> <Term_Language> <Language>70001/undetermined</Language> </Term_Language> </Term_Languages> </Preferred_Term> </Terms> </Subject> </Vocabulary> </pre>

2. Parse preferred biography from full XML:

```
value.parseXml().select('Vocabulary')[0].select('Subject')[0].select('Biographies')[0].select('Preferred_Biography')[0].select('Biography_Text')[0].ownText()
```

Add column based on column ULAN XML

New column name:

On error: set to blank store error copy value from original column

Expression: Language: No syntax error.

Preview History Starred Help

row	value	value.parseXml().select('Vocab ...
1.	<?xml version="1.0" encoding="utf-8"?> <Vocabulary xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="http://vocabs: <Subject Subject_ID="500299270"> <Parent_Relationships> <Preferred_Parent> <Parent_Subject_ID>500000002</Parent_Subject	Scottish painter and architect, 1830-1923

OK Cancel

Preferred Biography in OpenRefine cells

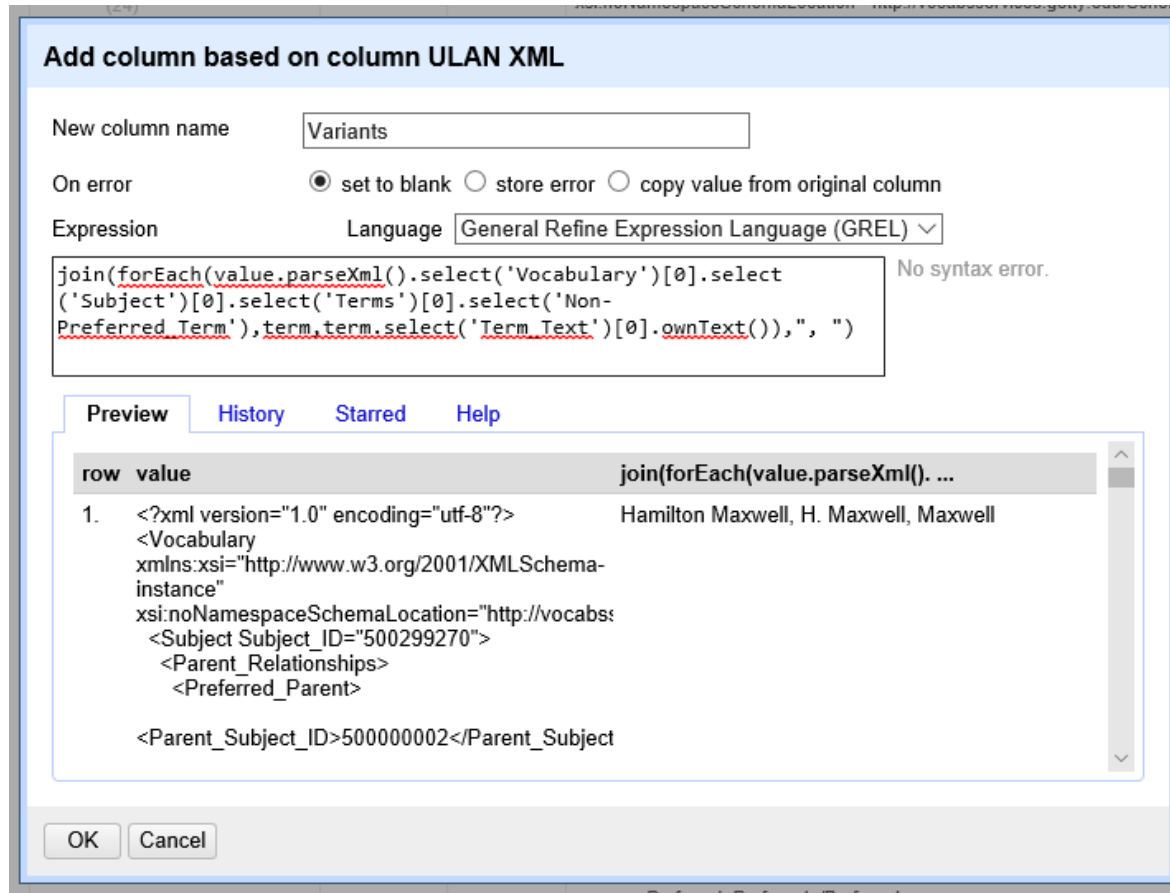
DISPLAYNAME	ULAN ID	Sync ID	Pref Bio
Maxwell Hamilton <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Maxwell, Hamilton (24) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Hamilton, Maxwell, Inc. (23) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Fry, Edwin Maxwell (14) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Bates, Maxwell (14) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Maxwell, John (14) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item	500299270	500299270	Scottish painter and architect, 1830-1923
Charles Aubry <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Charles (34) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Charles (33) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Emile (18) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Louis (18) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, René Marcel (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item	500029715	500029715	French photographer and designer, 1811-1877
Fédèle Azari <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Azari, Fedele (19) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Āzarī Isfarāyīnī, Hamzah ibn 'Alī Malik (5) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item	500103519	500103519	Italian photographer, 1895-1930
František Vobecký <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Vobecký, František (43) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Schmoranz, František (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Fišer, František (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Kadlec, František (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Kysela, František (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item	500028103	500028103	Czech photographer, 1902-1990
Eugen Wiskovsky <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Wiškovský, Eugen (18) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Kahler, Eugen von (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Rzibek, Eugen (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Nevan, Eugen (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Osswald, Eugen (13) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item	500031206	500031206	Czech photographer, 1888-1964

OpenRefine Example

Parse All Variant Terms from Full XML

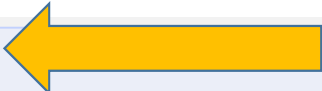
1. Add column and using the full XML, parse all variant names:

`join(forEach(value.parseXml().select('Vocabulary')[0].select('Subject')[0].select('Terms')[0].select('Non-Preferred_Term'),term,term.select('Term_Text')[0].ownText()),", ")`



Variant Names, comma-separated, in OpenRefine cells

DISPLAYNAME	ULAN ID	Sync ID	Variants	Pref Bio	Pref Term
Maxwell Hamilton <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Maxwell, Hamilton (24) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Hamilton, Maxwell, Inc. (23) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Fry, Edwin Maxwell (14) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Bates, Maxwell (14) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Maxwell, John (14) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item	500299270	500299270	Hamilton Maxwell, H. Maxwell, Maxwell	Scottish painter and architect, 1830-1923	Maxwell, Hamilton
Charles Aubry <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Charles (34) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Charles (33) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Emile (18) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, Louis (18) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Aubry, René Marcel (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item	500029715	500029715	Charles Aubry, Aubry, Charles-Hippolyte	French photographer and designer, 1811-1877	Aubry, Charles
Fédèle Azari <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Azari, Fedele (19) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Āzarī Isfarāyīnī, Hamzah ibn 'Alī Malik (5) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Create new item	500103519	500103519	Fedele Azari	Italian photographer, 1895-1930	Azari, Fedele
František Vobecký <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Vobecký, František (43) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Schmoranz, František (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Fišer, František (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Kadlec, František (17) <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Kysela, František (17)	500028103	500028103	Vobecky, Frantisek, František Vobecký, Vobecký, Frantisek	Czech photographer, 1902-1990	Vobecký, František



OpenRefine Example

Get TGN Place Coordinates from SPARQL Endpoint

1. Get preferred term by adding column by fetching URLs based on TGN ID, and input formula:

'http://vocab.getty.edu/sparql.json?query=select+(str(?t)+as+?term)+{tgn:' +escape(value,'url')+'+gvp:prefLabelGVP/gvp:term+?t}'

Add column by fetching URLs based on column TGN ID

New column name Throttle delay milliseconds

On error set to blank store error Cache responses

HTTP headers to be used when fetching URLs: [Show](#)

Formulate the URLs to fetch:

Expression Language No syntax error.

Preview History Starred Help

row	value	'http://vocab.getty.edu/sparql ...
1.	7001371	http://vocab.getty.edu/sparql.json?query=select+(str(?t)+as+?term)+{tgn:7001371+gvp:prefLabelGVP/gvp:term+?t}
2.	7000354	http://vocab.getty.edu/sparql.json?query=select+(str(?t)+as+?term)+{tgn:7000354+gvp:prefLabelGVP/gvp:term+?t}
3.	7013051	http://vocab.getty.edu/sparql.json?query=select+(str(?t)+as+?term)+{tgn:7013051+gvp:prefLabelGVP/gvp:term+?t}
4.	1079604	http://vocab.getty.edu/sparql.json?query=select+(str(?t)+as+?term)+{tgn:1079604+gvp:prefLabelGVP/gvp:term+?t}

1. Transform resulting JSON: `value.parseJson().results.bindings[0].term.value`

Custom text transform on column Pref Term

Expression Language General Refine Expression Language (GREL) ▾

`value.parseJson().results.bindings[0].term.value` No syntax error.

Preview History Starred Help

row	value	value.parseJson().results.bind ...
1.	<pre>{ "head": { "vars": ["term"] }, "results": { "bindings": [{ "term": { "type": "literal", "value": "Yerushalayim" } }] }</pre>	Yerushalayim

On error keep original set to blank store error Re-transform up to times until no change

OK Cancel

1. Parse resulting JSON:

`value.parseJson().results.bindings[0].lat.value+', '+value.parseJson().results.bindings[0].long.value`

Custom text transform on column LatLong

Expression Language General Refine Expression Language (GREL) ▾

`value.parseJson().results.bindings[0].lat.value+', '+value.parseJson().results.bindings[0].long.value` No syntax error.

Preview History Starred Help

row	value	value.parseJson().results.bind ...
1.	{ "head": { "vars": ["lat", "long"] }, "results": { "bindings": [{ "lat": { "datatype": "http://www.w3.org/2001/XMLSchema#decimal", "type": "literal", "value": "31.7667" } }] } }	31.7667, 35.2333

On error keep original Re-transform up to times until no change
 set to blank
 store error

OK Cancel

Resulting data enrichment:

▼ All	▼ TGN ID	▼ Pref Term	▼ LatLong	
☆	1.	7001371	Yerushalayim	31.7667, 35.2333
☆	2.	7000354	Marrakech	31.633, -8.009
☆	3.	7013051	Montréal	45.5, -73.6
☆	4.	1079604	Qiryat Tiv'on	32.7167, 35.1333
☆	5.	7010273	Sankt-Peterburg	59.8833, 30.25
☆	6.	7001369	Tel Aviv-Yafo	32.0833, 34.7667
☆	7.	1079614	Rishon LeZiyyon	31.95, 34.8
☆	8.	7007567	New York	40.7, -74
☆	9.	7023856	Shanghai	31.222222, 121.458056
☆	10.	7001370	Ramat Gan	32.0833, 34.8167
☆	11.	1079547	Kinneret	32.7167, 35.5667
☆	12.	1079641	Umm el Fahm	32.5167, 35.15
☆	13.	7001371	Yerushalayim	31.7667, 35.2333
☆	14.	7001362	Hefa	32.8167, 34.9833
☆	15.	7012178	Dushanbe	38.6333, 68.85
☆	16.	7004443	Düsseldorf	51.216667, 6.766667
☆	17.	7012333	Mulhouse	47.738082, 7.347932
☆	18.	7001371	Yerushalayim	31.7667, 35.2333
☆	19.	7001369	Tel Aviv-Yafo	32.0833, 34.7667
☆	20.	7001369	Tel Aviv-Yafo	32.0833, 34.7667
☆	21.	7001369	Tel Aviv-Yafo	32.0833, 34.7667
☆	22.	1079466	Holon	32.0167, 34.7667

OpenRefine Example

Query Reconciliation Service Using HTTP

Send JSON via HTTP Request

JSON Request Example 1:

```
queries=  
{  
  "q0": {  
    "query": "rhyta",  
    "type": "/aat"  
  }  
}
```

Curl request:

```
curl -X POST -d 'queries={"q0":{"query":"rhyta","type":"/aat"}}' "http://services.getty.edu/vocab/reconcile/"
```


Parse JSON Response

```
{
  "q0": {
    "result": [
      {
        "id": "aat/300198841",
        "match": false,
        "name": "rhyta",
        "score": 19.114761,
        "type": .... ,
      },
      {
        "id": "aat/300265000",
        "match": false,
        "name": "dimidiating rhyta",
        "score": 4.626431,
        "type": ...
      }
    ]
  }
}
```

Send JSON via HTTP Request

JSON Request Example 2:

```
queries=  
"q2": {  
    "query": "berlin",  
    "type": "/tgn",  
    "limit": 10,  
    "properties": [  
        {  
            "p": "place type",  
            "pid": "placeType",  
            "v": "inhabited places"  
        },  
        {  
            "p": "broader place",  
            "pid": "broaderExt",  
            "v": "Germany"  
        }  
    ]  
}
```

Curl request:

```
curl -X POST -d 'queries={"q2":{"query":"berlin","type":"/tgn","limit":10,"properties":[{"p":"place type","pid":"placeType","v":"inhabited places"}, {"p":"broader place","pid":"broaderExt","v":"Germany"}]}' "http://services.getty.edu/vocab/reconcile/"
```

Parse JSON Response

```
{
  "q2": {
    "result": [
      {
        "id": "tgn/7209905",
        "match": false,
        "name": "Berlin",
        "score": 18.897251,
        "type": ...
      },
      {
        "id": "tgn/7029437",
        "match": false,
        "name": "East Berlin",
        "score": 18.348005,
        "type": ...
      },
      {
        "id": "tgn/7003712",
        "match": false,
        "name": "Berlin",
        "score": 17.77391,
        "type": ...
      }
    ]
  }
}
```

Correct match: <http://vocab.getty.edu/page/tgn/7003712>

Online Resources

- Vocab Reconciliation Tutorial

http://www.getty.edu/research/tools/vocabularies/obtain/getty_vocabularies_openrefine_tutorial.pdf

- OpenRefine Functions

<https://github.com/OpenRefine/OpenRefine/wiki/GREL-Functions>

- OpenRefine Reconciliation Service Documentation

<https://reconciliation-api.github.io/specs/0.1/>

- Vocabularies XML Web Services

http://www.getty.edu/research/tools/vocabularies/vocab_web_services.pdf

- Vocabularies SPARQL Queries Example Page

<http://vocab.getty.edu/queries>