

Request for Comments for RDS City on 09.05.2022

Dieter Fensel, Umutcan Simsek
STI2

Abstract. *This document is a Request for Comments (RC) for the Request for Domain Specifications (RDS) on City from May 09, 2022.*

Table of Contents

1. Introduction	3
2. Suggestions	3
2.1 Request for a property additionalProperty	3
Representation with schema.org	3
2.2 Request for a property address	3
Representation with schema.org	4
2.3 Request for a property alternateName	4
Representation with schema.org	4
2.4 Request for a property containsPlace	4
Representation with schema.org	4
2.5 Request for a property description	5
Representation with schema.org	5
2.6 Request for a property event	5
Representation with schema.org	5
2.7 Request for a property geo	6
Representation with schema.org	6
2.8 Request for a property hasMap	6
Representation with schema.org	6
2.9 Request for a property identifier	6
Representation with schema.org	7
2.10 Request for a property image	7
Representation with schema.org	7
2.11 Request for a property mainEntityOfPage and subjectOf	7
Representation with schema.org	8
2.12 Request for a property name	8
Representation with schema.org	8
2.13 Request for a property sameAs	8
Representation with schema.org	9
2.14 Request for a property sdLicense	9
Extension to schema.org	9
2.15 Request for a property slogan	9
Representation with schema.org	10
2.16 Request for a property tourBookingPage	10
Representation with schema.org	10
2.17 Request for a property url	10
Representation with schema.org	10
3. Conclusion	11

1. Introduction

The requested domain specification is about selecting certain properties from the City type and specifying their cardinalities. One small extension to the domain of a property is also requested.

In the remainder of the document we provide our suggestions in relation to the requests made in the RDS. We then conclude with a summary and some general remarks.

2. Suggestions

This section presents our suggestions according to the requests made for the City Domain Specification. Each subsection contains a suggestion and starts with a quote from the RDS followed by our answer including how the request is recommended to be implemented.

2.1 Request for a property additionalProperty

<i>PROPERTY</i>	<i>CARDINALITY</i>	<i>RANGE TYPES</i>
<i>additionalProperty</i>	<i>0 +</i>	<i>PropertyValue</i>

An optional property for the City type is requested to be able to specify additional properties for cities. Note that additionalProperty allows a very generic mechanism to define property values. The canonical values for certain key-value pairs can be defined by ODTA.

Representation with schema.org

Property	Domain	Range
schema:additionalProperty	schema:City	schema:PropertyValue

2.2 Request for a property address

<i>PROPERTY</i>	<i>CARDINALITY</i>	<i>RANGE TYPES</i>
<i>address</i>	<i>0 - 1</i>	<i>PostalAddress Text</i>

A property for specifying the address of cities is requested. Although schema.org allows the usage of the address property on cities, conceptually it could be a bizarre modeling approach to specify addresses for cities. We kindly ask for an example where such a modeling makes sense.

Representation with schema.org

Property	Domain	Range
schema:address	schema:City	schema:PostalAddress

2.3 Request for a property alternateName

PROPERTY	CARDINALITY	RANGE TYPES
<i>alternateName</i>	0 +	<i>Text</i>

A property for specifying the alternative names for cities is requested. The proposed alternateName property can be used for this purpose.

Representation with schema.org

Property	Domain	Range
schema:alternateName	schema:City	schema:Text

2.4 Request for a property containsPlace

PROPERTY	CARDINALITY	RANGE TYPES
<i>containsPlace</i>	0 +	<i>Place</i>

A property for specifying the places a city contains is requested. The proposed containsPlace property can be used for this purpose.

Representation with schema.org

Property	Domain	Range
----------	--------	-------

schema:containsPlace	schema:City	schema:Place
----------------------	-------------	--------------

2.5 Request for a property description

<i>PROPERTY</i>	<i>CARDINALITY</i>	<i>RANGE TYPES</i>
<i>description</i> <i>de:Beschreibung</i>	<i>0 +</i>	<i>Text</i> <i>Localized Text</i>

A property for specifying descriptions of a city is requested. The proposed description property of schema.org can be used for this purpose. Note that the description values can be in multiple languages which means the usage of RDF language-tagged strings¹ is advised when generating data according to this DS.

Representation with schema.org

Property	Domain	Range
schema:description	schema:City	schema:Text

2.6 Request for a property event

<i>PROPERTY</i>	<i>CARDINALITY</i>	<i>RANGE TYPES</i>
<i>event</i>	<i>0 +</i>	<i>Event</i>

A property for specifying the events taking place in a city is requested. The proposed event property of schema.org can be used for this purpose. Note that there is already an EventDS request made by ODTA and this EventDS may be used for the range of this property. This point must be discussed within ODTA.

Representation with schema.org

Property	Domain	Range
schema:event	schema:City	schema:Event

¹ <https://www.w3.org/TR/rdf11-concepts/#section-Graph-Literal>

2.7 Request for a property geo

<i>PROPERTY</i>	<i>CARDINALITY</i>	<i>RANGE TYPES</i>
<i>geo</i>	<i>0 - 1</i>	GeoCoordinates GeoShape

A property for specifying the geo coordinates of a city is requested. The proposed geo property of schema.org can be used for this purpose. The RDS specifies that a city can have a maximum one pair of geo coordinates.

Representation with schema.org

Property	Domain	Range
schema:geo	schema:City	schema:GeoCoordinates

2.8 Request for a property hasMap

<i>PROPERTY</i>	<i>CARDINALITY</i>	<i>RANGE TYPES</i>
<i>hasMap</i>	<i>0 +</i>	<i>URL</i>

A property for specifying the URL for a map of a city is requested. The proposed hasMap property of schema.org can be used for this purpose.

Representation with schema.org

Property	Domain	Range
schema:hasMap	schema:City	schema:URL

2.9 Request for a property identifier

<i>PROPERTY</i>	<i>CARDINALITY</i>	<i>RANGE TYPES</i>
<i>identifier</i>	<i>0 +</i>	<i>Text</i> <i>PropertyValue</i> <i>URL</i>

A property for specifying a custom identifier for a city instance is requested. The proposed identifier property of schema.org can be used for this purpose.

Representation with schema.org

Property	Domain	Range
schema:identifier	schema:City	schema:Text OR schema:PropertyValue OR schema:URL

2.10 Request for a property image

<i>PROPERTY</i>	<i>CARDINALITY</i>	<i>RANGE TYPES</i>
<i>image</i>	<i>0 +</i>	<i>URL</i> <i>ImageObject</i>

A property for specifying images of a city is requested. The proposed image property of schema.org can be used for this purpose.

Representation with schema.org

Property	Domain	Range
schema:image	schema:City	schema:ImageObject OR schema:URL

2.11 Request for a property mainEntityOfPage and subjectOf

<i>PROPERTY</i>	<i>CARDINALITY</i>	<i>RANGE TYPES</i>
-----------------	--------------------	--------------------

<i>mainEntityOfPage</i>	0 +	URL
<i>subjectOf</i>	0 +	CreativeWork

A property for connecting city instances to various creative work is requested. In the RDS, there are two properties that can be used for this purpose, namely *mainEntityOfPage* and *subjectOf*. In order to avoid redundancy, we recommend to use the *mainEntityOfPage* property with *CreativeWork* or *URL* types in its range and eliminate the *subjectOf* property.

Representation with schema.org

Property	Domain	Range
schema:mainEntityOfPage	schema:City	schema:CreativeWork OR schema:URL

2.12 Request for a property name

PROPERTY	CARDINALITY	RANGE TYPES
<i>name</i>	1 +	<i>Text</i> <i>Localized Text</i>

A property for specifying names of a city is requested. The proposed name property of schema.org can be used for this purpose. Note that the name values can be in multiple languages which means the usage of RDF language-tagged strings² is advised when generating data according to this DS. A city must have at least one name.

Representation with schema.org

Property	Domain	Range
schema:name	schema:City	schema:Text

2.13 Request for a property sameAs

PROPERTY	CARDINALITY	RANGE TYPES
----------	-------------	-------------

² <https://www.w3.org/TR/rdf11-concepts/#section-Graph-Literal>

<i>sameAs</i>	<i>0 +</i>	<i>URL</i>
---------------	------------	------------

A property for specifying the duplicate instances of a city instance is requested. The proposed sameAs property of schema.org can be used for this purpose.

Representation with schema.org

Property	Domain	Range
schema:sameAs	schema:City	schema:URL

2.14 Request for a property sdLicense

PROPERTY	CARDINALITY	RANGE TYPES
<i>sdLicense</i>	<i>0 +</i>	<i>URL</i> <i>CreativeWork</i>

A property for specifying the license of an instance is requested. This request is not relevant only for the city instances but for all instances. The property provides a straightforward way to attach licenses at instance level. Schema.org defines an sdLicense property only on CreativeWork type, but the RDS wants to extend the domain of this property to Thing. We take on this proposal. See the LodgingBusinessDS RC for potential values of this property from the CreativeCommons licenses.

Extension to schema.org

Property	Domain	Range
schema:sdLicense	schema:City	schema:URL OR schema:CreativeWork

2.15 Request for a property slogan

PROPERTY	CARDINALITY	RANGE TYPES
<i>slogan</i>	<i>0 +</i>	<i>Text</i>

A property for specifying the slogan of a city is requested. The proposed slogan property of schema.org can be used for this purpose.

Representation with schema.org

Property	Domain	Range
schema:slogan	schema:City	schema:Text

2.16 Request for a property tourBookingPage

PROPERTY	CARDINALITY	RANGE TYPES
<i>tourBookingPage</i>	0 +	URL

A property for specifying the page where tours in a city can be booked is requested. The proposed `tourBookingPage` property of schema.org can be used for this purpose.

Representation with schema.org

Property	Domain	Range
schema:tourBookingPage	schema:City	schema:URL

2.17 Request for a property url

PROPERTY	CARDINALITY	RANGE TYPES
<i>url</i>	0 +	URL

A property for specifying the url of a page that represents a city is requested. The `url` property of schema.org can be used for this purpose. Note that a URI for a specific instance should be defined by the means of RDF (e.g., `@id` property of JSON-LD).

Representation with schema.org

Property	Domain	Range
schema:url	schema:City	schema:URL

3. Conclusion

In this Request for Comments, we provided our suggestions for building a domain specification for the City type of schema.org. We were able to take on most of the requests directly, as they were already conveniently mapped to schema.org. We only have two points that need clarification:

- The need for the address property for City instances
- Redundancy of mainEntityOfPage and subjectOf

The DS must be discussed within the ODTA in the next stage on GitHub.

Request for Domain Specification (RDS)

Title:	City
Last Modification Date:	9.5.2022
Authors	<i>Elias Kärle (Onlim)</i>
URI	https://semantify.it/ds/3TCH6JP9I

Abstract

In this RDS we propose a Domain Specification (DS) for **cities**, based on **schema.org/City**, as used in the GNTB's "Knowledge Graph für den Deutschlandtourismus" project. The DS holds all properties required to annotate a **city** sufficiently using just the vocabulary of schema.org. However, to annotate the type of license applied to the data set we suggest modifying the original schema.org vocabulary.

1. What is the topic that should be discussed

Explain what the requested domain specification is about (1-4 pages)

The DS presented in this RDS is about **cities** (<https://semantify.it/ds/3TCH6JP9I>) which are used in the GNTB's "Knowledge Graph für den Deutschlandtourismus" project. Hereby, we want to promote the properties, their cardinalities and their proposed ranges to be accepted by the ODTA to reach a broader audience and to enable a more streamlined data exchange process.

2. Why is this topic important for a broader audience

Explain why this topic is important for ODTA members and beyond (1-4 pages)

This topic is important because **cities** are amongst the most important data types used in touristic data exchange.

3. (Optional) How can/cannot this issue be represented in schema.org

Give a few examples of schema.org types and properties that can be used for the domain specification you are requesting. Additionally, you can give some examples of what cannot be expressed with the current schema.org vocabulary (1-4 pages)

The **cities** themselves can be represented in pure schema.org. However, to allow annotating a license, we propose to extend schema.org (see section 4).

A table of the proposed schema.org properties and their ranges can be found in the table below:

PROPERTY	CARDINALITY	RANGE TYPES
name	1 +	Text Localized Text
description de:Beschreibung	0 +	Text Localized Text
identifier	0 +	Text PropertyValue URL
image	0 +	URL ImageObject
url	0 +	URL
alternateName	0 +	Text
slogan	0 +	Text
address	0 - 1	PostalAddress Text
geo	0 - 1	GeoCoordinates GeoShape
containsPlace	0 +	Place
event	0 +	Event
sameAs	0 +	URL
additionalProperty	0 +	PropertyValue
hasMap	0 +	URL
mainEntityOfPage	0 +	URL
subjectOf	0 +	CreativeWork
tourBookingPage	0 +	URL
sdLicense	0 +	URL CreativeWork

Table 1: First-level schema.org properties of the proposed DS.

4. (Optional) How should schema.org be extended if necessary

Give a few examples of how schema.org should be extended (i.e., introducing which new types and properties) to cover your needs (1-4 pages)

To allow the annotation of a license, we propose to extend schema.org in a way that schema:sdLicense's domain is generalized to schema:Thing (see Listing 1).

```
<https://schema.org/sdLicense> <http://www.w3.org/1999/02/22-rdf-syntax-ns#type>
<http://www.w3.org/1999/02/22-rdf-syntax-ns#Property> .
<https://schema.org/sdLicense> <http://www.w3.org/2000/01/rdf-schema#comment> "This term
is proposed for full integration into Schema.org, pending implementation feedback and adoption
from applications and websites."@en .
```

```

<https://schema.org/sdLicense> <http://www.w3.org/2000/01/rdf-schema#label>
"sdLicense"@en .
<https://schema.org/sdLicense> <https://schema.org/domainIncludes>
<https://schema.org/Thing> .
<https://schema.org/sdLicense> <https://schema.org/rangeIncludes>
<https://schema.org/CreativeWork> .
<https://schema.org/sdLicense> <https://schema.org/rangeIncludes> <https://schema.org/URL> .

```

Listing 1: Changing schema:sdLicense's domain to schema:Thing (N-Triples Syntax).

For an example of how a **city** with a CC-BY-SA license can be annotated see Listing 2:

```

{
  "@type": [
    "schema:City"
  ],
  "schema:name": [
    {
      "@type": "xsd:string",
      "@value": "Hopfen am See"
    }
  ],
  "schema:sdLicense": [
    {
      "@type": "schema:URL",
      "@value": "https://creativecommons.org/publicdomain/zero/1.0/"
    }
  ],
  "ds:compliesWith": {
    "@id": "https://semantify.it/ds/3TCH6JP9I"
  }
}

```

*Listing 2: An **city** validly annotated according to the proposed DS under consideration of the new schema:sdLicense property.*