

Request for Comments for RDS Offer on 09.05.2022

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STI2

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

Table of Contents

1. Introduction	3
2. Suggestions	3
2.1 Request for a property availability	3
Representation with schema.org	3
2.2 Request for a property availabilityEnds	3
Representation with schema.org	4
2.3 Request for a property availabilityStarts	4
Representation with schema.org	4
2.4 Request for a property availableAtOrFrom	4
Representation with schema.org	5
2.5 Request for a property description	5
Representation with schema.org	5
2.6 Request for a property identifier	5
Representation with schema.org	6
2.7 Request for a property image	6
Representation with schema.org	6
2.8 Request for a property itemOffered	6
Representation with schema.org	6
Representation with schema.org	7
2.9 Request for a property name	7
Representation with schema.org	7
2.10 Request for a property price	7
2.11 Request for a property priceCurrency	8
2.12 Request for a property priceSpecification	8
Representation with schema.org	8
Representation with schema.org	8
2.13 Request for a property sdLicense	8
Extension to schema.org	9
2.14 Request for a property url	9
Representation with schema.org	9
2.15 Request for a property validFrom	9
Representation with schema.org	10
2.16 Request for a property validThrough	10
3. Conclusion	10

1. Introduction

The requested domain specification is about selecting certain properties from the Offer 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 Offer 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 availability

<i>PROPERTY</i>	<i>CARDINALITY</i>	<i>RANGE TYPES</i>
<i>availability</i>	<i>1</i>	<i>ItemAvailability</i>

A property for the Offer type is requested to be able to specify availability status of offers. The proposed availability property from schema.org can be used for this purpose. An offer can have exactly one availability value.

Representation with schema.org

Property	Domain	Range
schema:availability	schema:Offer	schema:ItemAvailability

2.2 Request for a property availabilityEnds

<i>PROPERTY</i>	<i>CARDINALITY</i>	<i>RANGE TYPES</i>
<i>availabilityEnds</i>	<i>0 - 1</i>	<i>DateTime</i> <i>Date</i>

A property for the Offer type is requested to be able to specify the end date of the offer availability. The proposed availabilityEnds property from schema.org can be used for this purpose. An offer can have maximum 1 end date for its availability.

Representation with schema.org

Property	Domain	Range
schema:availabilityEnds	schema:Offer	schema:DateTime OR schema>Date

2.3 Request for a property availabilityStarts

PROPERTY	CARDINALITY	RANGE TYPES
<i>availabilityStarts</i>	<i>0 - 1</i>	<i>DateTime</i> <i>Date</i>

A property for the Offer type is requested to be able to specify the start date of the offer availability. The proposed availabilityStarts property from schema.org can be used for this purpose. An offer can have maximum 1 availabilityStarts value.

Representation with schema.org

Property	Domain	Range
schema:availabilityStarts	schema:Offer	schema:DateTime OR schema>Date

2.4 Request for a property availableAtOrFrom

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

A property for the Offer type is requested to be able to specify the locations where an offer can be obtained. The proposed availableAtOrFrom property from schema.org can be used for this purpose.

Representation with schema.org

Property	Domain	Range
schema:availableAtOrFrom	schema:Offer	schema:Place

2.5 Request for a property description

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

A property for specifying descriptions of an offer 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:Offer	schema:Text

2.6 Request for a property identifier

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

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

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

Representation with schema.org

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

2.7 Request for a property image

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

A property for specifying images of an offer 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:Offer	schema:ImageObject OR schema:URL

2.8 Request for a property itemOffered

PROPERTY	CARDINALITY	RANGE TYPES
<i>itemOffered</i>	0 +	Service Product

A property for specifying the items offered in an offer is requested. The proposed itemOffered property of schema.org can be used for this purpose. Note that the value of the itemOffered property has typically an MTE with Product or Service types as value, depending on the domain in which the offers are specified.

Representation with schema.org

Property	Domain	Range
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schema:itemOffered	schema:Offer	schema:Product OR schema:Service
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Representation with schema.org

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

2.9 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 an offer 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. An offer must have at least one name.

Representation with schema.org

Property	Domain	Range
schema:name	schema:Offer	schema:Text

2.10 Request for a property price

PROPERTY	CARDINALITY	RANGE TYPES
<i>price</i>	1	<i>Number</i> <i>Text</i>

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

A property is requested to specify the price of an Offer. We recommend using the `priceSpecification` property as it provides a more structured way to represent price information. See Section 2.13.

2.11 Request for a property `priceCurrency`

PROPERTY	CARDINALITY	RANGE TYPES
<i>priceCurrency</i>	1	Text

A property is requested to specify the price currency of an Offer. We recommend using the `priceSpecification` property as it provides a more structured way to represent price currency information. See Section 2.13.

2.12 Request for a property `priceSpecification`

PROPERTY	CARDINALITY	RANGE TYPES
<i>priceSpecification</i>	0 - 1	PriceSpecification

A property for specifying the price information of an offer instance is requested. The proposed `priceSpecification` property of `schema.org` can be used for this purpose. An offer can have a maximum one price specification.

Representation with `schema.org`

Property	Domain	Range
<code>schema:priceSpecification</code>	<code>schema:Offer</code>	<code>schema:PriceSpecification</code>

Representation with `schema.org`

Property	Domain	Range
<code>schema:sameAs</code>	<code>schema:Offer</code>	<code>schema:URL</code>

2.13 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 offer 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:Offer	schema:URL OR schema:CreativeWork

2.14 Request for a property url

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

A property for specifying the url of a page that represents an offer 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:Offer	schema:URL

2.15 Request for a property validFrom

PROPERTY	CARDINALITY	RANGE TYPES
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<i>validFrom</i>	<i>0 - 1</i>	<i>DateTime</i> <i>Date</i>
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A property is requested to specify the start date of the validity of an offer. The proposed `validFrom` property from schema.org can be used for this purpose. An offer can have maximum 1 value for the `validFrom` property.

Representation with schema.org

Property	Domain	Range
schema:validFrom	schema:Offer	schema:DateTime OR schema>Date

2.16 Request for a property `validThrough`

<i>PROPERTY</i>	<i>CARDINALITY</i>	<i>RANGE TYPES</i>
<i>validThrough</i>	<i>0 - 1</i>	<i>DateTime</i> <i>Date</i>

A property is requested to specify the end date of the validity of an offer. The proposed `validThrough` property from schema.org can be used for this purpose. An offer can have maximum 1 `validThrough` property value.

,Representation with schema.org

Property	Domain	Range
schema:validThrough	schema:Offer	schema:DateTime OR schema>Date

3. Conclusion

In this Request for Comments, we provided our suggestions for building a domain specification for the Offer 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 made a different recommendation regarding the specification of the price information of offers.

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

Request for Domain Specification (RDS)

Title:	Ofer
Last Modification Date:	9.5.2022
Authors	<i>Elias Kärle (Onlim)</i>
URI	https://semantify.it/ds/jM_FHnHO2

Abstract

In this RDS we propose a Domain Specification (DS) for **offers**, based on **schema.org/Offer**, as used in the GNTB's "Knowledge Graph für den Deutschlandtourismus" project. The DS holds all properties required to annotate an **offer** 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 **offers** (https://semantify.it/ds/jM_FHnHO2) 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 **offers** of any kind 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 **offer** itself 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
itemOffered	0 +	Service Product
price	1	Number Text
priceCurrency	1	Text
priceSpecification	0 - 1	PriceSpecification
availability	1	ItemAvailability
availabilityStarts	0 - 1	DateTime Date
availabilityEnds	0 - 1	DateTime Date
validFrom	0 - 1	DateTime Date
validThrough	0 - 1	DateTime Date
availableAtOrFrom	0 +	Place
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 an **offer** with a CC-BY-SA license can be annotated see Listing 2:

```

{
  "@type": [
    "schema:Offer"
  ],
  "schema:name": [
    {
      "@type": "xsd:string",
      "@value": "Ermäßigter Eintritt ins Schwimbad"
    }
  ],
  "schema:price": [
    {
      "@type": "schema:Number",
      "@value": "25"
    }
  ],
  "schema:priceCurrency": [
    {
      "@type": "xsd:string",
      "@value": "EUR"
    }
  ],
  "schema:availability": [
    {
      "@id": "schema:InStock"
    }
  ],
  "schema:sdLicense": [
    {
      "@type": "schema:URL",
      "@value": "https://creativecommons.org/licenses/by-sa/3.0/"
    }
  ],
  "ds:compliesWith": {
    "@id": "https://semantify.it/ds/jM_FHnHO2"
  }
}

```

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