# Request for Comments for RDS LodgingBusiness 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 LodgingBusiness from May 09, 2022.*

# Table of Contents

# 1. Introduction

The requested domain specification is about selecting certain properties from the LodgingBusiness 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 LodgingBusiness 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 address

| PROPERTY | CARDINALITY | RANGE TYPES |
|----------|-------------|-------------|
| address | 1 | *PostalAddress* <br> *Text* |

A property for specifying the address of lodging businesses is requested. The address property of Place can be used for this purpose. A lodging business must have exactly one address value.

Representation with schema.org

| Property | Domain | Range |
|----------|--------|-------|
| schema:address | schema:LodgingBusiness | schema:PostalAddress |

## 2.2 Request for a property aggregateRating

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

| | | |
|---|---|---|
| aggregateRating | 0 - 1 | AggregateRating |

A property for specifying the aggregated rating of a lodging business is requested. The aggregateRating property of the LodgingBusiness type can be used for this purpose. A lodging business can have at most one value for this property.

Representation with schema.org

| Property | Domain | Range |
|---|---|---|
| schema:aggregateRating | schema:LodgingBusiness | schema:AggregateRating |

## 2.3 Request for a property availableLanguage

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| availableLanguage | 0 + | Language |

A property for specifying the available language at a lodging business is requested. The availableLanguage property of the LodgingBusiness type can be used for this purpose.

Representation with schema.org

| Property | Domain | Range |
|---|---|---|
| schema:availableLanguage | schema:LodgingBusiness | schema:Language |

## 2.4 Request for a property checkinTime

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| checkinTime | 0 - 1 | DateTime |

A property for specifying the check-in time at a lodging business is requested. The checkinTime property of the LodgingBusiness type can be used for this purpose. A lodging business can have at most one value for this property. As a range of this property however Time type may be more suitable, as check-in times are typically only given as a time point on any day.

Representation with schema.org

| Property | Domain | Range |
|---|---|---|
| schema:checkinTime | schema:LodgingBusiness | schema:Time |

## 2.5 Request for a property checkoutTime

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| checkoutTime | 0 - 1 | DateTime |

A property for specifying the check-out time at a lodging business is requested. The checkoutTime property of the LodgingBusiness type can be used for this purpose. A lodging business can have at most one value for this property. As a range of this property however Time type may be more suitable, as check-out times are typically only given as a time point on any day.

Representation with schema.org

| Property | Domain | Range |
|---|---|---|
| schema:checkoutTime | schema:LodgingBusiness | schema:Time |

## 2.6 Request for a property contactPoint

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| contactPoint | 0 - 1 | ContactPoint |

A property for specifying the contact point of a lodging business is requested. The contactPoint property of the LodgingBusiness type can be used for this purpose. A lodging business can have at most one value for this property.

Representation with schema.org

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

| schema:contactPoint | schema:LodgingBusiness | schema:ContactPoint |

## 2.7 Request for a property containsPlace

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| containsPlace | 0 + | Place<br>Accommodation |

A property for specifying the places a lodging business contains is requested. The proposed containsPlace property can be used for this purpose. We do not however see the reason to have the type Place and Accommodation in the range as Place is the super type of Accommodation.

Representation with schema.org

| Property | Domain | Range |
|---|---|---|
| schema:containsPlace | schema:LodgingBusiness | schema:Place |

## 2.8 Request for a property currenciesAccepted

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| *currenciesAccepted* | *0 +* | *Text* |

A property for specifying the accepted currencies by a lodging business is requested. The currenciesAccepted property of the LodgingBusiness type can be used for this purpose.

Representation with schema.org

| Property | Domain | Range |
|---|---|---|
| schema:currenciesAccepted | schema:LodgingBusiness | schema:Text |

## 2.9 Request for a property department

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| department | 0 + | Organization |

A property for specifying the departments of a lodging business is requested. The department property of the LodgingBusiness type can be used for this purpose.

### Representation with schema.org

| Property | Domain | Range |
|---|---|---|
| schema:department | schema:LodgingBusiness | schema:Organization |

## 2.10 Request for a property description

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| *description de:Beschreib ung* | *0 +* | *Text Localized Text* |

A property for specifying descriptions of a lodging business 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 strings[1] is advised when generating data according to this DS.

### Representation with schema.org

| Property | Domain | Range |
|---|---|---|
| schema:description | schema:LodgingBusiness | schema:Text |

## 2.11 Request for a property email

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

| PROPERTY | CARDINALITY | RANGE TYPES |
|----------|-------------|-------------|
| email | 1 | Text |

A property for specifying the email address of lodging businesses is requested. The email property of LodgingBusiness can be used for this purpose. A lodging business must have exactly one address value.

Representation with schema.org

| Property | Domain | Range |
|----------|--------|-------|
| schema:email | schema:LodgingBusiness | schema:Text |

## 2.12 Request for a property faxNumber

| PROPERTY | CARDINALITY | RANGE TYPES |
|----------|-------------|-------------|
| faxNumber | 0 + | Text |

A property for specifying the fax number of lodging businesses is requested. The faxNumber of Place can be used for this purpose.

Representation with schema.org

| Property | Domain | Range |
|----------|--------|-------|
| schema:faxNumber | schema:LodgingBusiness | schema:Text |

## 2.13 Request for a property founder

| PROPERTY | CARDINALITY | RANGE TYPES |
|----------|-------------|-------------|
| founder | 0 + | Person |

A property for specifying the founder of a lodging business is requested. The founder property of LodgingBusiness can be used for this purpose.

Representation with schema.org

| Property | Domain | Range |
|---|---|---|
| schema:founder | schema:LodgingBusiness | schema:Person |

## 2.14 Request for a property foundingDate

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| foundingDate | 0 - 1 | Date |

A property for specifying the establishment date of a lodging business is requested. The foundingDate property of the LodgingBusiness type can be used for this purpose. A lodging business can have at most one value for this property.

Representation with schema.org

| Property | Domain | Range |
|---|---|---|
| schema:foundingDate | schema:LodgingBusiness | schema:Date |

## 2.15 Request for a property geo

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| geo | 0 - 1 | GeoCoordinates<br>GeoShape |

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

Representation with schema.org

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

| schema:geo | schema:LodgingBusiness | schema:GeoCoordinates |
|---|---|---|

## 2.16 Request for a property hasMap

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| hasMap | 0 + | URL |

A property for specifying the URL for a map of a lodging business 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:LodgingBusiness | schema:URL |

## 2.17 Request for a property identifier

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| identifier | 0 + | Text<br>PropertyValue<br>URL |

A property for specifying a custom identifier for a lodging business 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:LodgingBusiness | schema:Text OR<br>schema:PropertyValue OR<br>schema:URL |

## 2.18 Request for a property image

| PROPERTY | CARDINALITY | RANGE TYPES |
|----------|-------------|-------------|
| image | 0 + | URL<br>ImageObject |

A property for specifying images of a lodging business 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:LodgingBusiness | schema:ImageObject OR schema:URL |

## 2.19 Request for a property makesOffer

| PROPERTY | CARDINALITY | RANGE TYPES |
|----------|-------------|-------------|
| makesOffer | 0 - 1 | Offer |

A property for specifying the offers of a lodging business is requested. The proposed makesOffer property of schema.org can be used for this purpose. The property is requested to have at most one value, however we do not see the reason for this as there may be multiple offers of a lodging business.

Representation with schema.org

| Property | Domain | Range |
|----------|--------|-------|
| schema:makesOffer | schema:LodgingBusiness | schema:Offer |

## 2.20 Request for a property name

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| *name* | *1 +* | *Text*<br>*Localized Text* |

A property for specifying names of a lodging business 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 strings[2] is advised when generating data according to this DS. A lodging business must have at least one name.

Representation with schema.org

| Property | Domain | Range |
|---|---|---|
| schema:name | schema:LodgingBusiness | schema:Text |

## 2.21 Request for a property openingHoursSpecification

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| *openingHoursSpecification* | *1 +* | *OpeningHoursSpecification* |

A property for specifying the opening hours of a lodging business is requested. The proposed openingHoursSpecification property of schema.org can be used for this purpose. The property has at least one value.

Representation with schema.org

| Property | Domain | Range |
|---|---|---|
| schema:openingHoursSpecification | schema:LodgingBusiness | schema:OpeningHoursSpecification |

## 2.22 Request for a property paymentAccepted

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

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| paymentAccepted | 0 + | Text |

A property for specifying the accepted payment methods of a lodging business is requested. The proposed paymentAccepted property of schema.org can be used for this purpose.

Representation with schema.org

| Property | Domain | Range |
|---|---|---|
| schema:paymentAccepted | schema:LodgingBusiness | schema:Text |

## 2.23 Request for a property petsAllowed

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| petsAllowed | 0 - 1 | Text<br>Boolean |

A property for specifying whether pets are allowed at a lodging business is requested. The proposed petsAllowed property of schema.org can be used for this purpose. The property can have at most one value.

Representation with schema.org

| Property | Domain | Range |
|---|---|---|
| schema:petsAllowed | schema:LodgingBusiness | schema:Text OR<br>schema:Boolean |

## 2.24 Request for a property photo

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| photo | 0 + | ImageObject |

A property for specifying the photographs of a lodging business is requested. The proposed photo property of schema.org can be used for this purpose. Ideally, we would like to also know that the difference between the image and photo properties in terms of their usage is.

Representation with schema.org

| Property | Domain | Range |
|---|---|---|
| schema:photo | schema:LodgingBusiness | schema:ImageObject |

## 2.25 Request for a property priceRange

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| priceRange | 1 | Text |

A property for specifying the price range of lodging businesses is requested. The priceRange property of LodgingBusiness can be used for this purpose. A lodging business must have exactly one value for this property.

Representation with schema.org

| Property | Domain | Range |
|---|---|---|
| schema:priceRange | schema:LodgingBusiness | schema:Text |

## 2.26 Request for a property review

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| review | 0 + | *Review* |

A property for specifying the reviews of a lodging business is requested. The proposed review property of schema.org can be used for this purpose.

Representation with schema.org

| Property | Domain | Range |
|---|---|---|
| schema:review | schema:LodgingBusiness | schema:Review |

## 2.27 Request for a property sameAs

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| *sameAs* | *0 +* | *URL* |

A property for specifying the duplicate instances of a lodging business 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:LodgingBusiness | schema:URL |

## 2.28 Request for a property sdLicense

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| *sdLicense* | *0 +* | *URL*<br>*CreativeWork* |

A property for specifying the license of an instance is requested. This request is not relevant only for the lodging business 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:LodgingBusiness | schema:URL        OR<br>schema:CreativeWork |

## 2.29 Request for a property starRating

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| starRating | 0 - 1 | *Rating* |

A property for specifying the star rating of a lodging business is requested. The proposed starRating property of schema.org can be used for this purpose. The property can have at most one value.

Representation with schema.org

| Property | Domain | Range |
|---|---|---|
| schema:starRating | schema:LodgingBusiness | schema:Rating |

## 2.30 Request for a property telephone

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| telephone | 0 + | Text |

A property for specifying the telephone number of a lodging business is requested. The proposed telephone property of schema.org can be used for this purpose.

Representation with schema.org

| Property | Domain | Range |
|---|---|---|
| schema:telephone | schema:LodgingBusiness | schema:Text |

## 2.31 Request for a property url

| PROPERTY | CARDINALITY | RANGE TYPES |
|---|---|---|
| url | 0 + | URL |

A property for specifying the url of a page that represents a lodging business 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:LodgingBusiness | schema:URL |

# 3. Conclusion

In this Request for Comments, we provided our suggestions for building a domain specification for the LodgingBusiness type of schema.org. Note that there has already been a more comprehensive proposal made regarding accommodations (AccommodationDS-05012022), however there is nothing particularly conflicting between the two submissions. Most of the proposals were taken on directly, however there are still some open questions from our side:
- What should be the range of checkinTime and checkoutTime properties?
- What should be the range of containsPlace?
- What should be the cardinality of the makesOffer property?
- What is the difference between the purpose of image and photo properties?

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

# Request for Domain Specification (RDS)

| Title: | **LodgingBusiness** |
|---|---|
| **Last Modification Date:** | **9.5.2022** |
| **Authors** | *Elias Kärle (Onlim)* |
| **URI** | [https://semantify.it/ds/Sypf3bVG1z](https://semantify.it/ds/Sypf3bVG1z) |

**Abstract**

In this RDS we propose a Domain Specification (DS) for **lodging businesses**, based on **schema.org/LodgingBusiness**, as used in the GNTB's "Knowledge Graph für den Deutschlandtourismus" project. The DS holds all properties required to annotate a **lodging business** 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 **lodging business** ([https://semantify.it/ds/Sypf3bVG1z](https://semantify.it/ds/Sypf3bVG1z)) 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 **lodging businesses** 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 **lodging business** 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<br>Localized Text |
| description<br>de:Beschreibung | 0 + | Text<br>Localized Text |
| identifier | 0 + | Text<br>PropertyValue<br>URL |
| image | 0 + | URL<br>ImageObject |
| url | 0 + | URL |
| telephone | 1 | Text |
| starRating | 0 - 1 | Rating |
| aggregateRating | 0 - 1 | AggregateRating |
| availableLanguage | 0 + | Language |
| address | 1 | PostalAddress |
| checkinTime | 0 - 1 | DateTime |
| checkoutTime | 0 - 1 | DateTime |
| containsPlace | 0 + | Place<br>Accommodation |
| currenciesAccepted | 0 + | Text |
| department | 0 + | Organization |
| email | 1 | Text |
| faxNumber | 0 - 1 | Text |
| geo | 0 - 1 | GeoCoordinates |
| hasMap | 0 - 1 | URL |
| makesOffer | 0 - 1 | Offer |
| openingHoursSpecification | 0 + | OpeningHoursSpecification |
| paymentAccepted | 0 + | Text |
| petsAllowed | 0 - 1 | Text<br>Boolean |
| photo | 0 + | ImageObject |
| priceRange | 0 - 1 | Text |
| review | 0 + | Review |
| sameAs | 0 - 1 | URL |
| foundingDate | 0 - 1 | Date |
| founder | 0 - 1 | Person |

| contactPoint | 0 + | ContactPoint |
| --- | --- | --- |
| sdLicense | 0 + | URL<br>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:sdLicesense'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 **lodging business** with a CC-BY-SA license can be annotated see Listing 2:

```
{
  "@type": [
    "schema:LodgingBusiness"
  ],
  "schema:name": [
    {
      "@type": "xsd:string",
      "@value": "Haus Anni"
    }
  ],
  "schema:telephone": [
    {
      "@type": "xsd:string",
      "@value": "+49123456789"
    }
  ],
  "schema:address": [
    {
      "@type": [
        "schema:PostalAddress"
```

```
      ],
      "schema:streetAddress": [
        {
          "@type": "xsd:string",
          "@value": "Hauptstrasse 2"
        }
      ],
      "schema:addressLocality": [
        {
          "@type": "xsd:string",
          "@value": "Talhausen"
        }
      ],
      "schema:postalCode": [
        {
          "@type": "xsd:string",
          "@value": "45678"
        }
      ],
      "schema:addressRegion": [
        {
          "@type": "xsd:string",
          "@value": "Hessen"
        }
      ],
      "schema:addressCountry": [
        {
          "@type": "xsd:string",
          "@value": "DE"
        }
      ]
    }
  ],
  "schema:email": [
    {
      "@type": "xsd:string",
      "@value": "haus@anni.io"
    }
  ],
  "schema:sdLicense": [
    {
      "@type": "schema:URL",
      "@value": "https://creativecommons.org/publicdomain/zero/1.0/"
    }
  ],
  "ds:compliesWith": {
    "@id": "https://semantify.it/ds/Sypf3bVG1z"
  }
}
```

*Listing 2: A **lodging business** validly annotated according to the proposed DS under consideration of the new schema:sdLicense property.*