

Science on Schema.org

Ontology Summit 2023

2023.04.05

What is Schema.org?

Hotel

A Schema.org Type

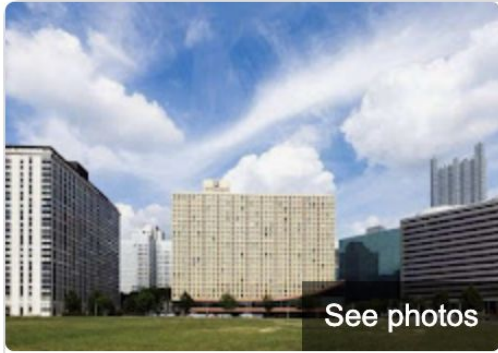
Thing > Organization > LocalBusiness > LodgingBusiness > Hotel

Thing > Place > LocalBusiness > LodgingBusiness > Hotel

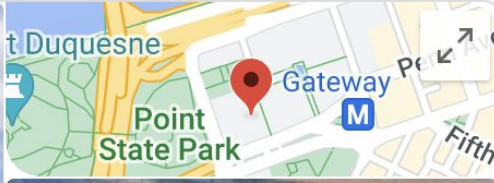
A hotel is an establishment that provides lodging paid on a short-term basis (Source: Wikipedia, the free encyclopedia, see <http://en.wikipedia.org/wiki/Hotel>).

See also the [dedicated document on the use of schema.org for marking up hotels and other forms of accommodations](#).

```
</rdfs:Class>
<rdfs:Class rdf:about="http://schema.org/Hotel">
  <rdfs:subClassOf rdf:resource="http://schema.org/LodgingBusiness"/>
  <schema:source rdf:resource="https://www.w3.org/wiki/WebSchemas/Schema
  <rdfs:comment><![CDATA[A hotel is an establishment that provides lodg
<br /><br />
See also the <a href="/docs/hotels.html">dedicated document on the use of
]]></rdfs:comment>
  <rdfs:label>Hotel</rdfs:label>
</rdfs:Class>
```



See photos



See outside

Wyndham Grand Pittsburgh Downtown

Website

Directions

Save

Call

3.8 ★★★★★ 4,316 Google reviews

3-star hotel

CHECK AVAILABILITY

Address: 600 Commonwealth Pl, Pittsburgh, PA 15222

Phone: (412) 391-4600

Hotel details

In the Central Business District, this upscale contemporary hotel is 0.7 miles from The Andy Warhol Museum, 1.6 miles from Heinz Field and 18.7 miles from Pittsburgh International Airport. ...

[MORE](#) ▼

Free Wi-Fi

Breakfast

P Parking

Accessible

Indoor pool

✱ Air-conditioned

[View more amenities](#)



Wyndham Grand Pittsburgh Downtown

[Website](#)[Directions](#)[Save](#)[Call](#)

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[MORE](#) ▾

📶 Free Wi-Fi

☕ Breakfast

P Parking

♿ Accessible

🏊 Indoor pool

❄ Air-conditioned

[View more amenities](#)

General Details

Name

The Raphael Hotel

URL

http://www.raphaelkc.com/

Logo

https://storage.googleapis.com/brev

Image

https://storage.googleapis.com/brev

Social Channel (SameAs)

https://www.marriott.com/hotels/tra

Description

The Raphael Hotel is an upscale historic US Renaissance revival-style building dating back to 1928.

Amenities

☒ Free Wi-Fi

☐ Free parking

☐ Accessible

☐ Air-conditioned

Check in/out

Check in Time

06:00 PM

Check out Time

02:00 PM

Contact Details

Telephone

+1-816-756-3800

Fax Number

+1-816-802-2150

Email

info@raphaelkc.com

Location

Street Address

325 Ward Parkway

City

Kansas City

State

MO

Postal Code

64112

Visual:



The Raphael Hotel is an upscale historic US Renaissance revival-style building dating back to 1928.

Amenities: Free Wi-Fi.

Connect with Us: <https://www.marriott.com/hotels/travel/mciak-the-raphael-hotel-autograph-collection/>

Phone: +1-816-756-3800

Fax: +1-816-802-2150

Email: info@raphaelkc.com

325 Ward Parkway Kansas City MO 64112 USA

[View Map](#)

Map Position: 39.039536 -94.591296 Elevation: 1500ft

Check In: 6:00 PM

Check Out: 2:00 PM

Booking Details:

Best Available Rate

Enjoy our hotel's best available rate!

General Details

Name

The Raphael Hotel



URL

<http://www.raphaelkc.com/>

Logo

<https://storage.googleapis.com/brev>

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AUTOGRAPH COLLECTION®



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Best Available Rate

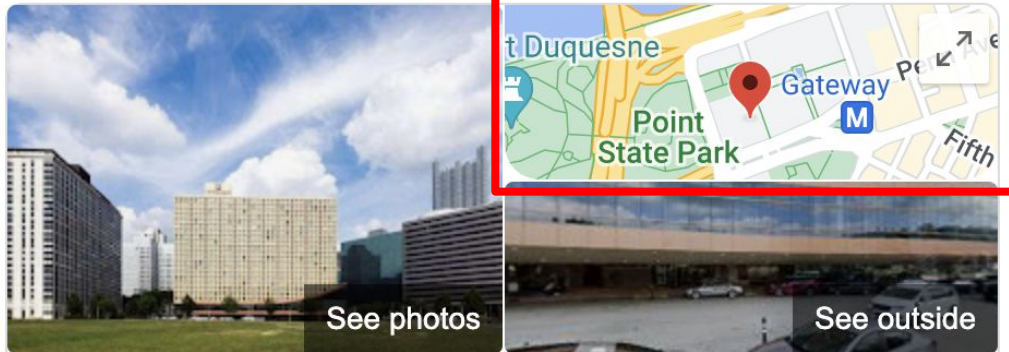
Enjoy our hotel's best available rate!

Schema.org data on a webpage informs search engines,
what your page content is ***about***,

Schema.org data on a webpage informs search engines,
what your page content is about,
using schemas agreed upon by **publishers & consumers**,

Schema.org data on a webpage informs search engines,
what your page content is about,
using schemas agreed upon by publishers & consumers,
for making content ***actionable***.

What is actionable content?



Wyndham Grand Pittsburgh Downtown

[Website](#)[Directions](#)[Save](#)[Call](#)

3.8 ★★★★★ 4,316 Google reviews

3-star hotel

[CHECK AVAILABILITY](#)

Address: 600 Commonwealth Pl, Pittsburgh, PA 15222

Phone: (412) 391-4600

Hotel details

In the Central Business District, this upscale contemporary hotel is 0.7 miles from The Andy Warhol Museum, 1.6 miles from Heinz Field and 18.7 miles from Pittsburgh International Airport. ...

[MORE](#) ▾

Free Wi-Fi

Breakfast

P Parking

Accessible

Indoor pool

Air-conditioned

[View more amenities](#)

Actions are ***unique*** to the content.

Hotel

A Schema.org Type

Thing > Organization > LocalBusiness > LodgingBusiness > Hotel

Thing > Place > LocalBusiness > LodgingBusiness > Hotel

A hotel is an establishment that provides lodging paid on a short-term basis (Source: Wikipedia, the free encyclopedia, see <http://en.wikipedia.org/wiki/Hotel>).

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Hotel

ResearchProject

A Schema.org Type

This term is proposed for full integration into Schema.org, *pending* implementation feedback and adoption from applications and websites.

Thing > Organization > Project > ResearchProject

A Research project.

[more...]

Property	Expected Type	Description
Properties from Organization		
actionableFeedbackPolicy	CreativeWork or URL	For a NewsMediaOrganization or other news-related Organization , a statement about public engagement activities (for news media, the newsroom's), including involving the public - digitally or otherwise -- in coverage decisions, reporting and activities after publication.
address	PostalAddress or Text	Physical address of the item.
aggregateRating	AggregateRating	The overall rating, based on a collection of reviews or ratings, of the item.
alumni	Person	Alumni of an organization. Inverse property: alumniOf
areaServed	AdministrativeArea or GeoShape or Place or Text	The geographic area where a service or offered item is provided. Supersedes serviceArea .
award	Text	An award won by or for this item. Supersedes awards .
brand	Brand or Organization	The brand(s) associated with a product or service, or the brand(s) maintained by an organization or business person.
contactPoint	ContactPoint	A contact point for a person or organization. Supersedes contactPoints .

Dataset

A *Schema.org* Type

Thing > CreativeWork > Dataset

[more...]

A body of structured information describing some topic(s) of interest.

Property	Expected Type	Description
Properties from Dataset		
distribution	DataDownload	A downloadable form of this dataset, at a specific location, in a specific format.
includedInDataCatalog	DataCatalog	A data catalog which contains this dataset. Supersedes includedDataCatalog , catalog . Inverse property: dataset
issn	Text	The International Standard Serial Number (ISSN) that identifies this serial publication. You can repeat this property to identify different formats of, or the linking ISSN (ISSN-L) for, this serial publication.
measurementTechnique	Text or URL	A technique or technology used in a Dataset (or DataDownload , DataCatalog), corresponding to the method used for measuring the corresponding variable(s) (described using variableMeasured). This is oriented towards scientific and scholarly dataset publication but may have broader applicability; it is not intended as a full representation of measurement, but rather as a high level summary for dataset discovery. For example, if variableMeasured is: molecule concentration, measurementTechnique could be: "mass spectrometry" or "nmr spectroscopy" or "colorimetry" or "immunofluorescence". If the variableMeasured is "depression rating", the measurementTechnique could be "Zung Scale" or "HAM-D" or "Beck Depression Inventory". If there are several variableMeasured properties recorded for some given data object, use a PropertyValue for each variableMeasured and attach the corresponding measurementTechnique .
variableMeasured	PropertyValue or Text	The variableMeasured property can indicate (repeated as necessary) the variables that are measured in some dataset, either described as text or as pairs of identifier and description using PropertyValue .
Properties from CreativeWork		
about	Thing	The subject matter of the content. Inverse property: subjectOf
abstract	Text	An abstract is a short description that summarizes a CreativeWork .
accessMode	Text	The human sensory perceptual system or cognitive faculty through which a person may process or perceive information. Values should be drawn from the approved vocabulary . A list of single or combined accessModes that are sufficient to understand all the intellectual

ResearchProject

A *Schema.org* Type

Thing > Organization > Project > ResearchProject

A Research project.

Property	Expected Type
Properties from Organization	
actionableFeedbackPolicy	CreativeWork or URL
address	PostalAddress or Text
aggregateRating	AggregateRating
alumni	Person
areaServed	AdministrativeArea, GeoShape or Place or Text
award	Text
brand	Brand or Organization
contactPoint	ContactPoint

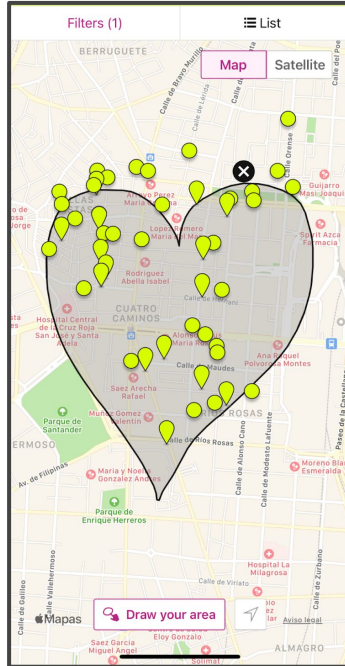
What does this mean for
science data?

What ***actions*** does the science data community want?

What ***actions*** does the science data community want?

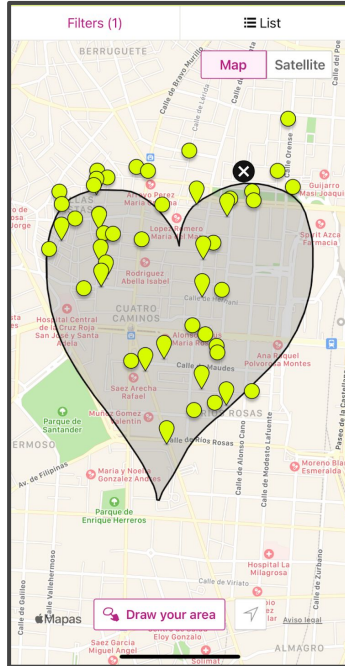
Google

Download



What **actions** does the science data community want?

Google

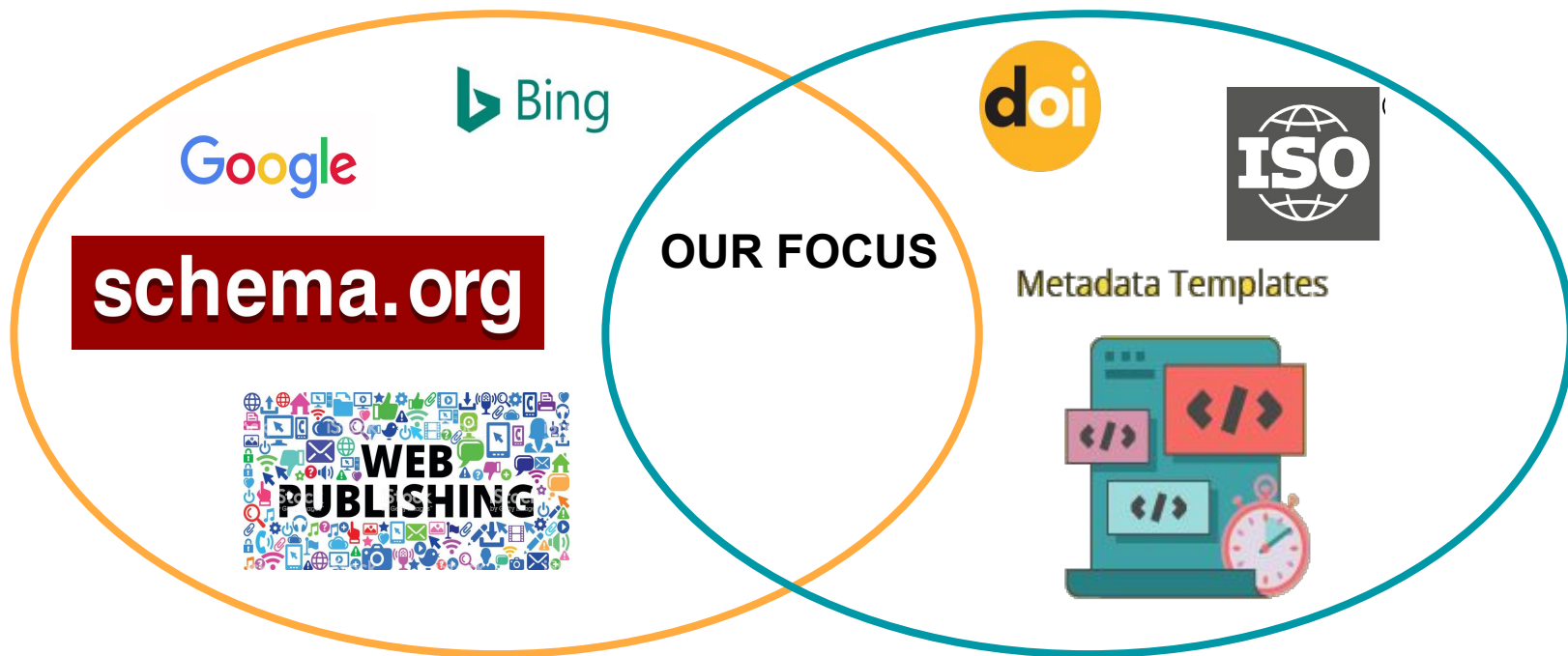




Science-on-schema.org

ESIP Schema.org Cluster

Common publishing patterns for describing research data on your web pages using *schema.org*



Easy for publishers; harder for harvesters (to interpret)

Schema.org: Evolution of Structured Data on the Web *by Guha & Brickley*

DOI:10.1145/2844544

- make is easy for publishers (read lenient)
- the work is for harvesters to reconcile the data
- schema.org is a core vocabulary meant to be **extended**

[Pull requests](#) [Issues](#) [Marketplace](#) [Explore](#)[ESIPFed / science-on-schema.org](#) Public[Edit Pins](#)[Unwatch](#) 30[Fork](#) 23[Starred](#) 80[Code](#) [Issues](#) 75 [Pull requests](#) 1 [Discussions](#) [Actions](#) [Projects](#) 3 [Wiki](#) [Security](#) [Insights](#) [Settings](#)

Science On Schema.Org (SOSO) Guidance Documents

This repository provides guidance for repository operators and others to follow consistent conventions to provide schema.org markup in Dataset landing pages to improve data discovery through search engines. The main guides help describe Datasets and Data Repositories.

Name		Guideline	Examples	Issues
Dataset	guidelines for schema.org for a scientific Dataset		<code></></code>	
Data Repository	guidelines for schema.org for a research data repository		<code></></code>	

- [Getting Started](#) - explains some useful techniques that will be common across all schema.org types
- [Experimental](#) - some suggestions for more advanced dataset documentation, proposed for inclusion in future SOSO guidelines.

Citation

Science on Schema.org (SOSO) releases are archived on Zenodo, and the current release should be cited as:

Adam Shepherd, Matthew B. Jones, Stephen Richard, Nicolas Jarboe, Dave Vieglaiss, Douglas Fils, Ruth Duerr, Chantelle Verhey, Melinda Minch, Bryce Mecum, Nokome Bentley. (2022). Science-on-Schema.org v1.3.0. Zenodo. <https://doi.org/10.5281/zenodo.6502539>

About



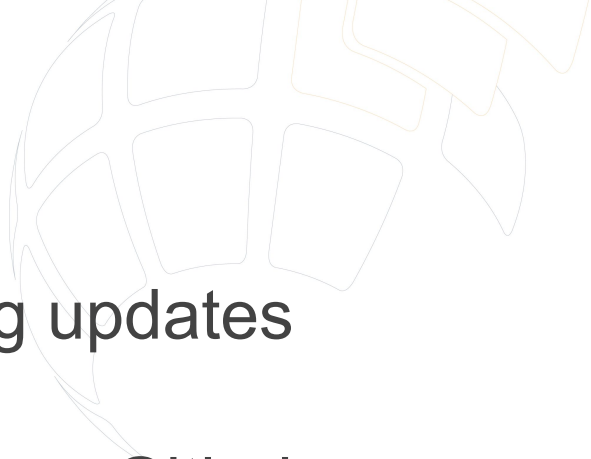
science-on-schema.org - providing guidance for publishing schema.org as JSON-LD for the sciences

[Readme](#)[Apache-2.0 license](#)[80 stars](#)[30 watching](#)[23 forks](#)

Releases

 4[v1.3.0](#) Latest
15 days ago[+ 3 releases](#)

ESIP Schema.org Cluster



1. Monitor monthly to schema.org updates
2. Accept contributions and issues at Github
3. Maintain & publish updates to guidelines

Data Repository - a repository with research data

Dataset - the scientific dataset

Why guidelines?

WHY?

<u>variableMeasured</u>	<u>PropertyValue</u> or <u>Text</u>	<u>measurement technique</u> . The variableMeasured property can indicate (repeated as necessary) the variables that are measured in some dataset, either described as text or as pairs of identifier and description using PropertyValue.
Properties from <u>CreativeWork</u>		
<u>about</u>	<u>Thing</u>	The subject matter of the content. Inverse property: <u>subjectOf</u> .
<u>abstract</u>	<u>Text</u>	An abstract is a short description that summarizes a <u>CreativeWork</u> .
<u>accessMode</u>	<u>Text</u>	The human sensory perceptual system or cognitive faculty through which a person may process or perceive information. Expected values include: auditory, tactile, textual, visual, colorDependent, chartOnVisual, chemOnVisual, diagramOnVisual, mathOnVisual, musicOnVisual, textOnVisual.
<u>accessModeSufficient</u>	<u>ItemList</u>	A list of single or combined accessModes that are sufficient to understand all the intellectual content of a resource. Expected values include: auditory, tactile, textual, visual.
<u>accessibilityAPI</u>	<u>Text</u>	Indicates that the resource is compatible with the referenced accessibility API (<u>WebSchemas wiki lists possible values</u>).
	<u>Text</u>	Identifies input methods that are sufficient to fully control the

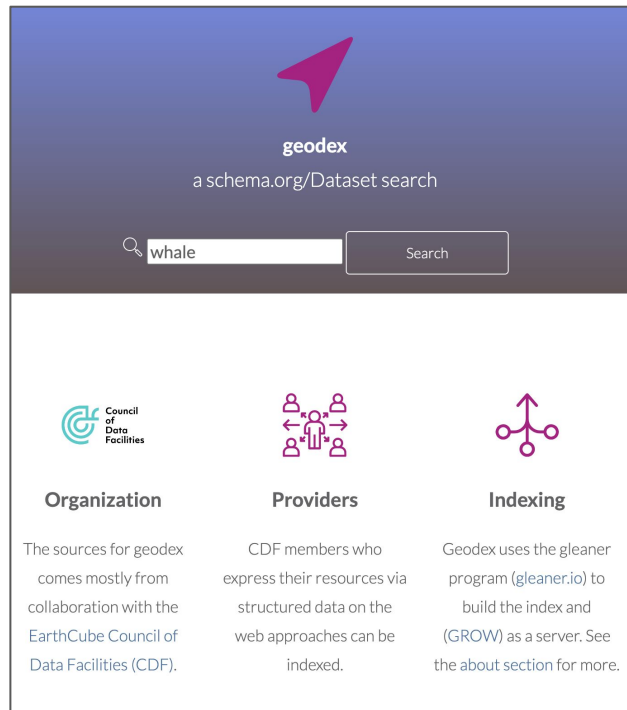
schema.org

- Flat descriptions
 - How are things connected?
- Limited examples
- Endless ways to publish

Q: *How to do we share patterns of use so that no one is left behind?*

Guidelines for Shared Publishing Patterns

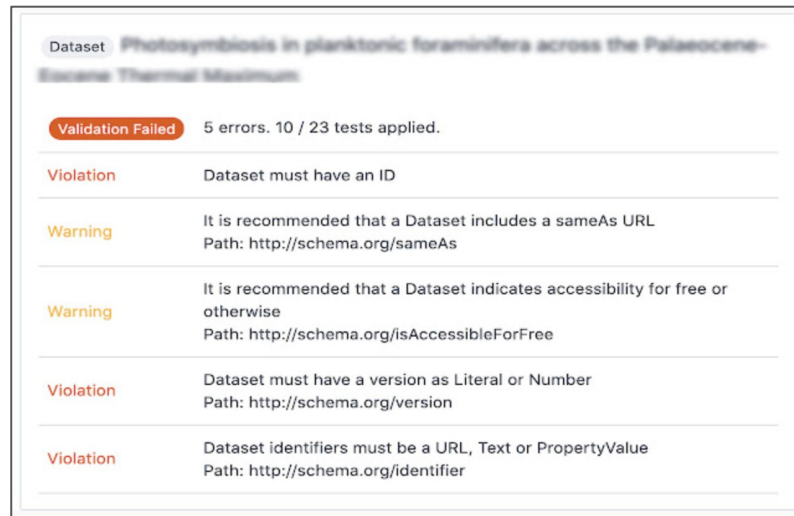
➤ Reliable, consistent **federation**



The screenshot shows the geodex website interface. At the top, there is a purple header with the geodex logo and the text 'a schema.org/Dataset search'. Below the header is a search bar with the text 'whale' and a 'Search' button. The main content area is divided into three columns: Organization, Providers, and Indexing. Each column has a logo and a brief description.

Organization	Providers	Indexing
 The sources for geodex comes mostly from collaboration with the EarthCube Council of Data Facilities (CDF).	 CDF members who express their resources via structured data on the web approaches can be indexed.	 Geodex uses the gleaner program (gleaner.io) to build the index and (GROW) as a server. See the about section for more.

➤ Automate Validation



The screenshot shows a validation report for a dataset. The dataset title is 'Photosymbiosis in planktonic foraminifera across the Palaeocene-Eocene Thermal Maximum'. The report indicates that the validation failed with 5 errors out of 23 tests applied. The errors are listed in a table below.

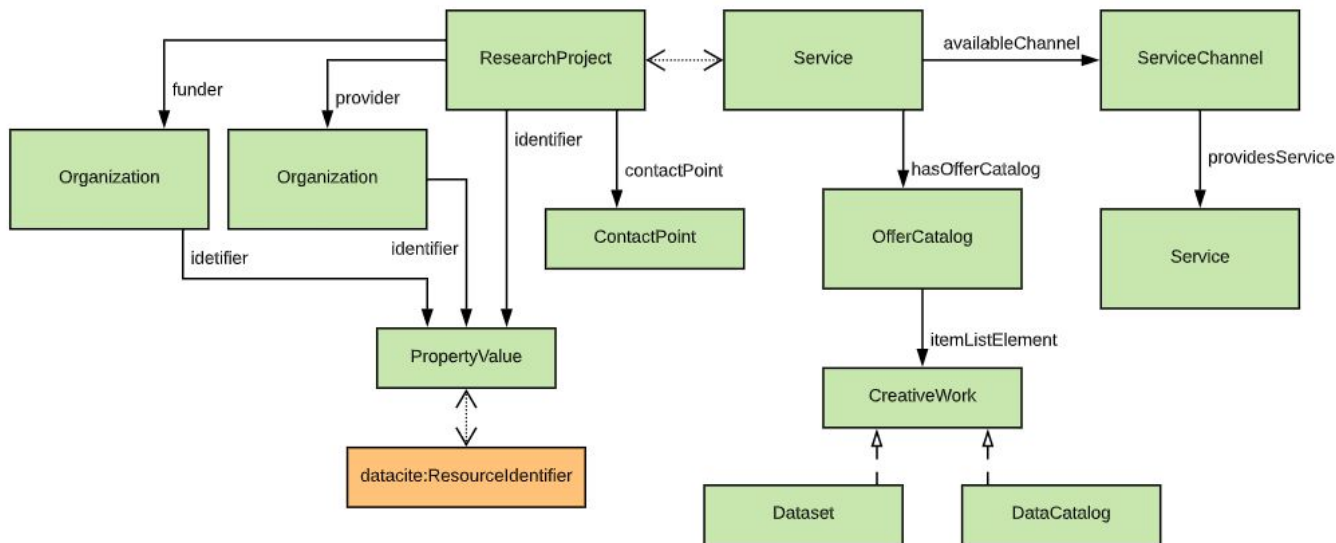
Validation Failed	5 errors. 10 / 23 tests applied.
Violation	Dataset must have an ID
Warning	It is recommended that a Dataset includes a sameAs URL Path: http://schema.org/sameAs
Warning	It is recommended that a Dataset indicates accessibility for free or otherwise Path: http://schema.org/isAccessibleForFree
Violation	Dataset must have a version as Literal or Number Path: http://schema.org/version
Violation	Dataset identifiers must be a URL, Text or PropertyValue Path: http://schema.org/identifier

Describing a Repository

github.com/ESIPFed/science-on-schema.org/.../guides/DataRepository.md

- Basic Fields
- Identifier
- Funding Source
- Services
- Data Collections
- Advanced Publishing Techniques
 - How to use external vocabularies

Describing a Repository

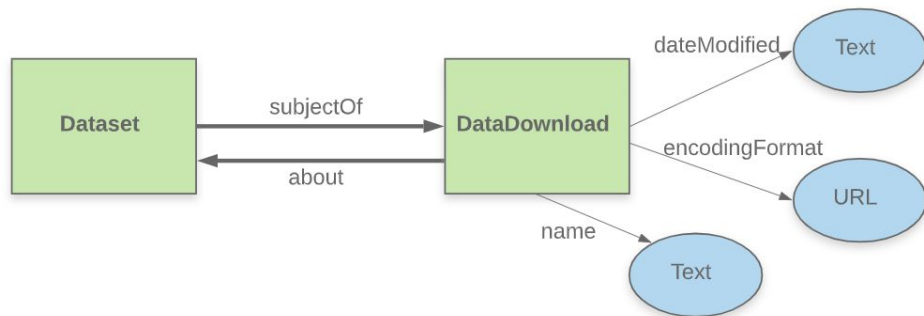


Describing a Dataset

github.com/ESIPFed/science-on-schema.org/..guides/Dataset.md

- Describing a Dataset
 - Common Properties
 - Identifier
 - Variables
 - Catalog
 - Metadata
 - Distributions
 - Accessing Data through a Service Endpoint
 - Temporal Coverage
 - Spatial Coverage
 - Roles of People
 - Publisher / Provider
 - Funding
 - License
 - Advanced Publishing Techniques
 - Attaching Physical Samples to a Dataset

Guidelines: Drawings & Examples



Once the linkage has been made, further details about the metadata can be provided. We recommend using `schema:encodingFormat` to indicate the metadata format/vocabulary to which the metadata record conforms. If it conforms to multiple formats, or to a specific and general format types, multiple types can be listed.

We use the `schema:DataDownload` class for Metadata files so that we can use the `schema:encodingFormat`, etc.

It can be useful to aggregators and other consumers to indicate when the metadata record which can be used to optimize harvesting schedules for search indices and other applications.

An example of a metadata reference to an instance of EML-formatted structured metadata is shown below.

```
{
  "@context": "https://schema.org/",
  "@type": "Dataset",
  "name": "Removal of organic carbon by natural bacterioplankton communities as a function of pCO2 from laboratory experiments",
  "distribution": {
    "@type": "DataDownload",
    ...
  },
  "subjectOf": {
    "@type": "DataDownload",
    "name": "eml-metadata.xml",
    "description": "EML metadata describing the dataset",
    "encodingFormat": ["application/xml", "https://eml.ecoinformatics.org/eml-2.2.0"],
    "dateModified": "2019-06-12T14:44:15Z"
  }
}
```

Alternatively, if the schema.org record is meant to describe the metadata record, one could use the inverse property `schema:about` to indicate the linkage back to the Dataset that it describes. This would be a more rare situation, as typically the schema.org record would be

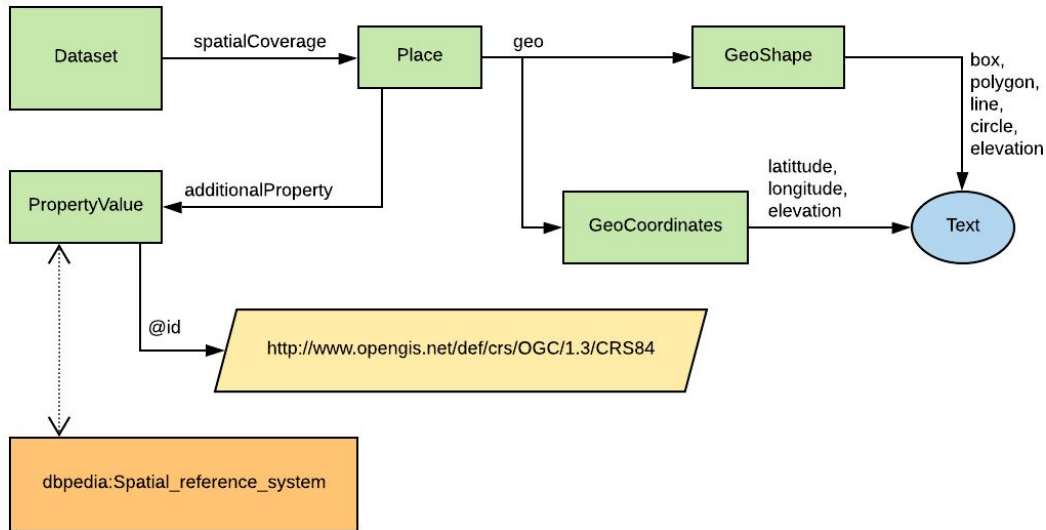
Guidelines: Drawings & Examples

A point, or coordinate, would be defined in this way:

```
{
  "@context": {
    "@vocab": "http://schema.org/",
    "datacite": "http://purl.org/spar/datacite/"
  },
  "@type": "Dataset",
  "name": "Removal of organic carbon by natural bacterioplankton",
  ...
  "spatialCoverage": {
    "@type": "Place",
    "geo": {
      "@type": "GeoCoordinates",
      "latitude": 39.3280
      "longitude": 120.1633
    }
  }
}
```

All other shapes, are defined using the [schema:GeoShape](#):

```
"spatialCoverage": {
  "@type": "Place",
  "geo": {
    "@type": "GeoShape",
    "line": "39.3280,120.1633 40.445,123.7878"
  }
}
```



How to Use Schema.org on your Dataset Web Pages

bit.ly/soso-tutorial

Takeaways:

- How to build Schema.org record
- Learn JSON-LD tips and techniques
- Introduce the latest updates to science-on-schema.org
 - Dataset Funding (Awards)
 - Variables
 - Geologic Time

Tags: schema-org, JSON-LD, metadata, tutorial

Want to learn more?

Contact: Adam Shepherd

Telecon: August 25th, 2:30pmET

- Build a Dataset (it's not complicated)
 - #1. JSON-LD Context
 - #2. Basic Fields
 - #3. Keywords
 - #4. License
 - #5. Identifiers
 - using sameAs
 - #6. Publisher
 - #7. Authors / Contributors
 - #8. Temporal Coverage
 - #9. Spatial Coverage
 - #10. Data Files
- Improving the Dataset
 - #11. Keywords
 - #12. Identifiers
 - #13. Authors / Contributors Improved
 - #14. Provider
 - #15. Funding & Awards
 - #16. Variables
 - #17. Metadata Records
 - #18. Checksums
- Advanced Techniques
 - Geologic Time
 - Provenance
 - Validating with SHACL

How are the guidelines
managed?

Governance



architecture decision record (ADR)

noun

document that captures an important architectural
decision made along with the context
and consequences

Governance - Github Issues & Telecons

Filters Labels 22 Milestones 3 [New issue](#)

☒ Clear current search query, filters, and sorts

☒ 33 Open ☒ 7 Closed

☐	Author	Label	Projects	Milestones	Assignee	Sort
☐	☒	Linking schema.org and instruments	Dataset			
		#225 opened 6 hours ago by huberrob				
☐	☒	New Keyword section missing discussion of use of URL in text and diagram	Dataset			1
		#215 opened on May 2 by rduerr				
☐	☒	Spatial and temporal resolution (or grid spacing)	Dataset			2
		#209 opened on Apr 19 by dr-shorthair				
☐	☒	how to link versions to the base dataset	Dataset			
		#194 opened on Dec 27, 2021 by smrgeoinfo				
☐	☒	Adopt DCAT accessURL, compressFormat and packageFormat	Dataset			
		#191 opened on Dec 9, 2021 by smrgeoinfo				
☐	☒	Update the use of Roles from the guidance	Dataset			
		#172 opened on Jun 24, 2021 by ashepherd 3 tasks				
☐	☒	Spatial type data type	Dataset			1
		#162 opened on Apr 8, 2021 by aorehek				
☐	☒	Series Frequency data type	Dataset			

7 Feb 2022 @ 5pm EST

Attendees:

Matt, Megan, Stephen, Gary Berg-Cross, Dave, Rebecca R, Nick

Agenda

- ESIIP Highlights Session Friday 1pm EST
 - <https://docs.google.com/document/d/1GZ-zAgDE0cdfpccuhOqMVAMNBGM-JANB5EgxUSVYaSY/edit>
 - 2 minute highlight
 - Stephen is available, will get template from Megan
 - Need to provide 1 slide following template by end of day tomorrow
- Finish v1.3 [[github project](#)]
 - Schema.org context namespace ([Issue #151](#))
 - Reversed the recs in all examples to recommend pulling the context file
 - Harvesters will need to normalize for sanity
 - Matt closed this, need to be sure new examples follow the new context approach
 - Representing geo time ([Issue #77](#))
 - Still need to incorporate text from the decision doc into the Dataset guide
 - variableMeasured ([Issue #24](#))
 - PR still exists
 - Experimental.md ([Issue #190](#))
 - Steve made updates following the recs last meetings
 - TODO: Examples need to follow the new context loading guidelines
 - TODO: the IGSN @id example should use the "igsn:" prefix
 - Needs review and merge

Governance - ADRs

Using Architectural Decision Records

Status

Proposed

Decision

Store all design decisions using an ADR record in the [/decisions](#) directory. Discussion may happen across Github issues and pull requests related to documentation, code and ADRs themselves, but these discussions will be boiled down to the essentials of the decision and the context to expedite onboarding of future members.

Context

Architecture Decision Records (ADRs) are a technique for capturing important architectural decisions along with their context and consequences stored in a version control system for the benefit of future team members as well as for external oversight. Storing architectural decisions in version control systems are recommended as opposed to Wikis or a website so that they remain in sync with the code itself.

- See: <https://www.thoughtworks.com/radar/techniques/lightweight-architecture-decision-records>
- See: https://github.com/joelparkerhenderson/architecture_decision_record

Consequences

As views on certain topics change over time, it will be difficult without ADRs to reflect on the context for a decision as it changes with respect to the code. In the past, this meant wading through Github issues that spider web off into different directions to related issues to make it difficult to follow the progression of thought across a single idea.

	101-spatialExtent.md
	109-funding.md
	13-schemaorg-identifier-as-PropertyValue.md
	27-measuredVariable.md
	30-release-workflow.md
	4-dataset-metadata-distributions.md
	47-use-spx-licenses.md
	52-namespace-consistency.md
	66-checksum.md
	72-provenance.md
	74-schemaorg-additionalType-vs-RDF-typing.md
	77-temporalCoverageGuidance.md
	ADR_TEMPLATE.md
	README.md

How often are they
updated?

Latest Release: v1.3

github.com/ESIPFed/science-on-schema.org/releases/tag/1.3.0

DOI 10.5281/zenodo.6502539

- **Dataset Funding** (Awards & Organizations)
- **Dataset Variables** (use of external vocabularies)
- **Geologic time** for temporal coverage
- Preserve item order (authors & contributors, etc.)
- More JSON-LD examples
- SHACL Validation

v1.3.0

Latest

RELEASE NOTES for 1.3.0

FIXES

- Namespace Consistency ([decision](#), [Issue #52](#))
- Moved experimental recommendations to a [separate document](#)

IMPROVEMENTS

- Describing dataset funding ([decision](#), [Issue #109](#))
- Describing dataset variables ([decision](#), [Issue #27](#))
- Improving temporal coverage of a dataset ([decision](#), [Issue #77](#))
- Preserving item order ([Issue #135](#))
- Describe need for a sitemap ([Issue #192](#))
- New JSON-LD [examples](#)
- Updated SHACL validation [shape](#)

NEW FEATURES

- Representing checksums as identifiers([decision](#), [Issue #66](#))

Get Involved

Telecons:

- 4th Thursday at 2:30pm ET/ 11:30am PT

Next Telecon: **Monday, April 5th, 5pmET ([Zoom](#))**

Mailing List: esip-schema-dot-org@lists.esipfed.org

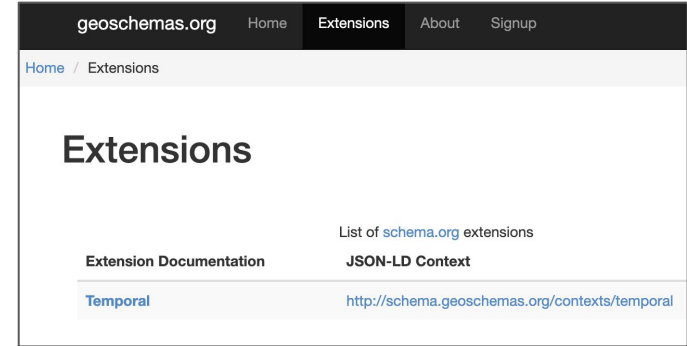
Slack: <https://esip-all.slack.com/messages/C8EACC8KT>

Twitter: [@ScienceOnSchema](https://twitter.com/ScienceOnSchema)

What adoption challenges
do science data have?

Challenges

1. Temporal & spatial representations
2. Describing other related entities
 - a. Deployments, Instrumentation & Vehicles, oh my!
 - b. Methodologies



What have been the
outcomes?

Google Dataset Search

[Google Dataset Search By the Numbers](#)

[Google Dataset Search: Building a search engine for datasets in an open Web ecosystem](#)

datasetsearch.research.google.com

The screenshot shows the Google Dataset Search interface. At the top, the search bar contains 'nutrient abundance'. Below the search bar are filters for 'Last updated', 'Download format', 'Usage rights', 'Topic', and 'Free'. A 'Saved datasets' button is on the right. The results list on the left includes:

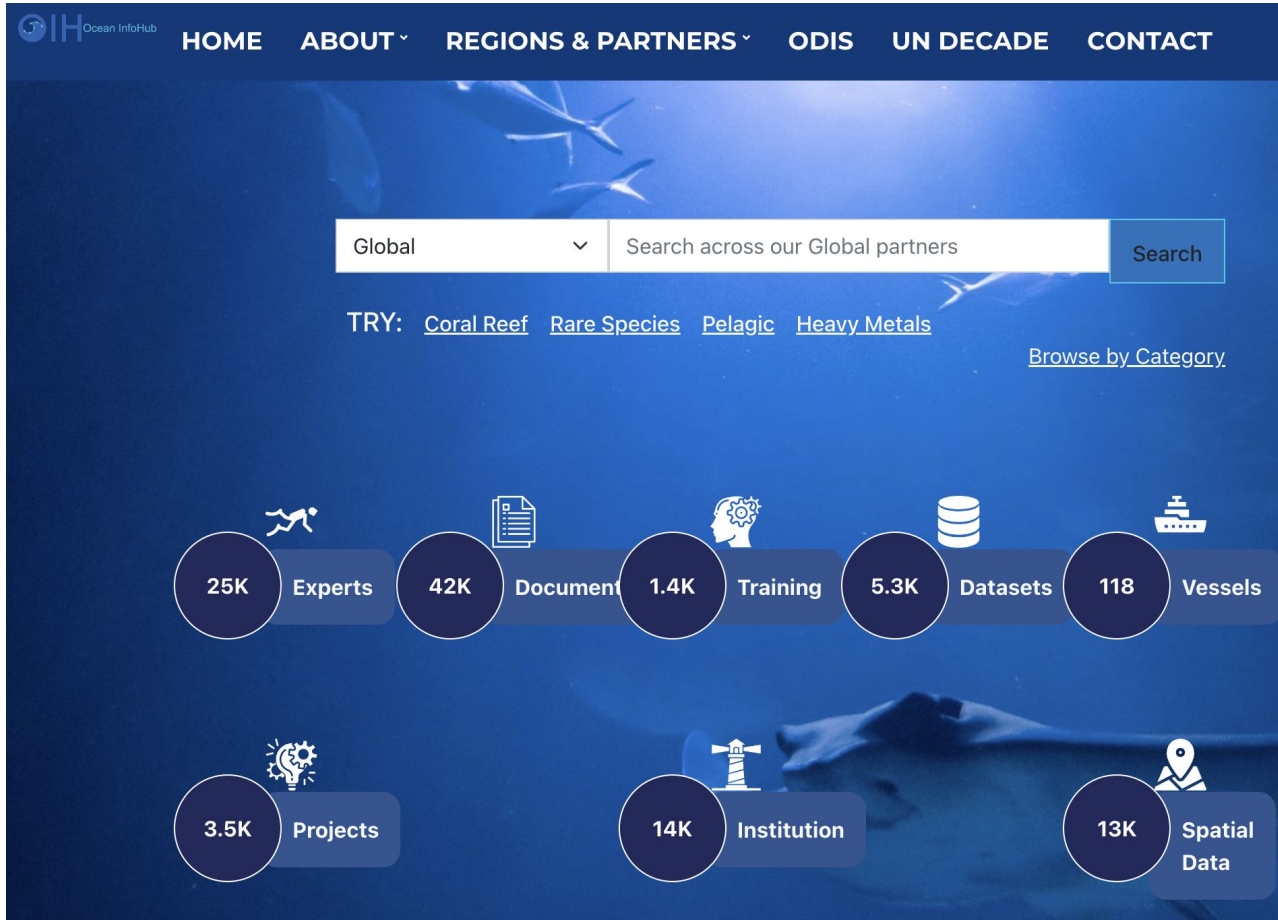
- D** Foliar nutrients and natural abundance isotope signature...
search.dataone.org
arcticdata.io
Updated May 22, 2018
- B** Microbial abundance, activity, and nutrient concentrations in...
www.bco-dmo.org
tsv
Updated Jan 22, 2013
- N** Dissolved nutrient, carbon and algal abundance in the Dark...
data-search.nerc.ac.uk
- Data from: Subcellular view of host-microbiome nutrient...
researchdata.edu.au
datadryad.org
Updated 2021
- U** Polar Sea 10-01CTD and Nutrient Data
data.ucar.edu
search.dataone.org
+4more
Updated Nov 10, 2020
- EPA2011 Microbial & nutrient database - Evaluating the...

The detailed view on the right for the first dataset shows:

- Title:** Foliar nutrients and natural abundance isotope signatures for Larix cajanderi, Cherskiy Density Gradient, Northeast Science Station, Russia, July and September, 2017
- Explore at:** [search.dataone.org](#) and [arcticdata.io](#)
- Unique identifier:** <https://doi.org/10.18739/A2NC5SB93>
- Dataset updated:** May 22, 2018
- Dataset provided by:** Arctic Data Center
- Authors:** Rebecca Hewitt
- Time period covered:** Jul 17, 2017 - Sep 8, 2017
- Area covered:** A map of the Cherskiy area in Russia, showing the location of the study site (Cherskiy) and surrounding locations like Kray Lesa, Pokhodsk, and others.
- Description:** We quantified foliar nutrients and natural abundance isotope signatures of Larix cajanderi during the peak and the end of the growing

- DataONE
- EarthCube
- Polder
- MagIC
- IOC-UNESCO IODE
- NASA
- BCO-DMO
- Arctic Data Center
- Netherlands Polar Data Center
- Dryad
- Hydroshare
- and more...

oceaninfohub.org

The image shows the Ocean InfoHub website interface. The background is a deep blue with an underwater scene featuring several sharks swimming. At the top, there is a dark blue navigation bar with the Ocean InfoHub logo on the left and several menu items: HOME, ABOUT (with a dropdown arrow), REGIONS & PARTNERS (with a dropdown arrow), ODIS, UN DECADE, and CONTACT. Below the navigation bar is a search bar with a dropdown menu currently set to 'Global' and a search button labeled 'Search'. Under the search bar, there is a 'TRY:' section with links to 'Coral Reef', 'Rare Species', 'Pelagic', and 'Heavy Metals'. To the right of these links is a link that says 'Browse by Category'. Below the search bar, there are eight circular icons representing different data categories, each with a count and a label: '25K Experts' (person icon), '42K Documents' (document icon), '1.4K Training' (head with gear icon), '5.3K Datasets' (database icon), '118 Vessels' (ship icon), '3.5K Projects' (lightbulb icon), '14K Institution' (lighthouse icon), and '13K Spatial Data' (location pin icon).

Ocean InfoHub

HOME ABOUT ▾ REGIONS & PARTNERS ▾ ODIS UN DECADE CONTACT

Global ▾ Search across our Global partners Search

TRY: [Coral Reef](#) [Rare Species](#) [Pelagic](#) [Heavy Metals](#) [Browse by Category](#)

25K Experts 42K Documents 1.4K Training 5.3K Datasets 118 Vessels

3.5K Projects 14K Institution 13K Spatial Data

Questions?