Bioschema Specifications

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### Contributors

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# Beacon Bioschema Description 0.2

*A convention for beacons to self-describe.*

In this document we propose a simple way for a beacons to self-describe their genetic variant cardinality service for better integration with other beacons within the beacon-network. It builds upon the Beacon service API and uses existing schema.org entities and properties.

A **Beacon** is currently defined by the following properties based on http://schema.org/DataCatalog

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Property** | **Expected Type** | **Description** | **CN** | **MG** |
| identifier | PropertyValue Text or URL | Unique identifier of the beacon | One | R |
| name | Text | Name of the Beacon | One | M |
| dataset | Dataset (BeaconDataset) | Datasets Served by this Beacon | Many | M |
| provider | Organization or Person | Contact information for this beacon | Many | M |
| description | Text | Description of the Beacon | One | R |
| version | Number or  Text | Beacon API version | One | R |
| url | URL | Welcome Page of this beacon | One | M |
| potentialActions | Action | List of Actions that can be performed on a Beacon | Many | M |
| sameAs | URL | Alternative URL for this beacon | Many | O |
| New proporties | | | | |
| aggregator | Boolean | True if Beacon is an aggregator of other BeaconDatasets | One | R? |
| supportedRefs | Text | Supported Genome ID references | Many | M |

**Legend:** *CN: Cardinality (one, many)*

*MG: Marginality (M: minimum; R: recommended; O: optional)*

Here is an example snippet showing the attributes you can use on a Beacon. For complete examples see the “Further examples” section at the end of this document.

|  |
| --- |
| **Example 1. Attributes/properties of a Beacon** |
| <div itemscope itemtype="[http://schema.org/Beacon](http://schema.org/DataRepository)">  <div itemprop="id">altruist</div>  <div itemprop="name">Altruist</div>  <div itemprop="organization">Sequencing.com </div>  ...  </div> |

This work is informed by [beacon-network.org API documentation](https://beacon-network.org/#/developers/api/beacon-network).

|  |
| --- |
| **Example 2. JSON+LD Attributes/properties of a EGA Beacon** |
| <script type="application/ld+json">  {  “@context": “[http://bioschemas.org](http://bioschema.org)”,  “@type”: “Beacon”,  “identifier”: “ega”,  “name: “European Genome-Phenome Archive”,  "description": “”,  “url”: “https://ega.crg.eu/beacon\_web/”,  “version”: “”,  “provider”: [  {  "@type": "Organization",  "name": "EMBL-EBI",  "contactPoint":{"email":"","name":""}  "description":"",  "url":"http://www.ebi.ac.uk/",  "address":"",  "logo":"https://example.com/logo.png"  },  {  "@type": "Organization",  "name": "CRG",  "contactPoint":{"email":"","name":""}  "description":"",  "url":"https://ega.crg.eu",  "address":"",  "logo":""  }  ],  “datasets”: [  {  “@context": “[http://bioschemas.org](http://bioschema.org)”,  “@type”: “BeaconDatasets”,  “identifier”: “EGAD00001000227”,  ...  },  ...  ],  “potentialActions”: [  {  “@context”: “http://schema.org”,  “@type”: “RetrieveAction”,  “name”: “GetBeacon”,  “description”: “Gets beacon information”,  “target”: {  “@context”:  “@type”: “Entrypoint”,  “httpMethod”: “GET”,  “contentType”: “application/json”,  “urlPattern”: “https://ega.crg.eu/beacon\_web/”,  }  },  {  “@context”: “<http://schema.org>”,  “@type”: “RetrieveAction”,  “name”: “GetBeaconAlleleResponse”,  “description”: “Gets response to a beacon query for allele information”,  “target”: {  “@context”:  “@type”: “Entrypoint”,  “httpMethod”: “GET”,  “contentType”: “application/json”,  “encodingType”: “application/json”,  “urlPattern”: “https://ega.crg.eu/beacon\_web/query”,  “x-request”: “BeaconAlleleRequest”  “x-response”: “BeaconAlleleResponse”  }  }  ],  “supportedRefs”: “HG19”,  “aggregator” : False    }  </script> |

# BeaconDataset Description 0.1

*A convention for beacons datasets to self-describe.*

In this document we propose a simple way for a beacon to self-describe each of their datasets that will contribute towards genetic variant cardinality service for better integration with other beacons within the beacon-network. It builds upon the Beacon service API and uses existing schema.org entities and properties.

A **BeaconDataset** is currently defined by the following properties based on http://schema.org/Dataset

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Property** | **Expected Type** | **Description** | **CN** | **MG** |
| identifier | PropertyValue Text or URL | Unique identifier of the dataset | One | M |
| name | Text | Name of the BeaconDataset | One | M |
| description | Text | Description of BeaconDataset | One | R |
| version | Text | Version of the BeaconDataset | One | R |
| url | URL | Webpage for additional information on this dataset | One | R |
| New Properties |  |  |  |  |
| assemblyId | Identifier | Genomic Assembly identifier | Many | M |
| variantCount | Number | Total number of variants in the dataset | One | R |
| callCount | Number | Total number of calls in the dataset | One | R |
| sampleCount | Number | Total number of samples in the dataset | One | R |

**Legend:**

*CN: Cardinality (one, many)*

*MG: Marginality (M: minimum; R: recommended; O: optional)*

Here is an example snippet showing the attributes you can use on a Beacon. For complete examples see the “Further examples” section at the end of this document.

|  |
| --- |
| **Example 1. Attributes/properties of a Beacon** |
| <div itemscope itemtype="[http://schema.org/Beacon](http://schema.org/DataRepository)">  <div itemprop="id">altruist</div>  <div itemprop="name">Altruist</div>  <div itemprop="assembyID">HG19</div>  ...  </div> |

|  |
| --- |
| **Example 2. JSON+LD Attributes/properties of a BeaconDataset** |
| <script type="application/ld+json">  {  “@context": “[http://bioschemas.org](http://bioschema.org)”,  “@type”: “BeaconDatasets”,  “identifier”: “EGAD00001000227”,  “name: “EGAD00001000227\_UK10K\_NEURO\_ABERDEEN\_REL\_2012\_07\_05”,  "description": “”,  “url”: “<https://ega-archive.org/datasets/EGAD00001000227>”,  “assemblyId”: “HG19”,  “variantCount”: “”,  “callCount”: “”,  “sampleCount”: “347”,  “version”: “v1”,  }  </script> |

This work is informed by [beacon-network.org API documentation](https://beacon-network.org/#/developers/api/beacon-network).