

JSON-LD

JSON for the Social Web

Gregg Kellogg

gregg@greggkellogg.net

[@gkellogg](#)

Introducing JSON-LD

@graph

@context

@id

JSON-based syntax to express linked data

@language

@value

@list

@type

@set

Language Principles

- Make full use of JSON syntactic representations
 - Object defines a *node definition*
- Define referenced *node definition* with chaining

```
{  
  "@context": "http://json-ld.org/contexts/person",  
  "@id": "http://greggkellogg.net/foaf#me",  
  "@type": "Person",  
  "name": "Gregg Kellogg",  
  "knows": "http://www.markus-lanthaler.com/"  
}
```

```
{  
  "@context": "http://json-ld.org/contexts/person",  
  "@id": "http://greggkellogg.net/foaf#me",  
  "@type": "Person",  
  "name": "Gregg Kellogg",  
  "knows": {  
    "@id": "http://www.markus-lanthaler.com/",  
    "@type": "Person",  
    "name": "Markus Lanthaler",  
    "knows": "http://greggkellogg.net/foaf#me"  
  }  
}
```


Language Principles

- Define *terms* to use short property names
- Associate types for property values

```
{  
  "@id": "http://greggkellogg.net/foaf#me",  
  "@type": "http://schema.org/Person",  
  "http://schema.org/name": "Gregg Kellogg",  
  "http://schema.org/knows": {  
    "@id": "http://www.markus-lanthaler.com/"  
  }  
}
```

```
{  
  "@context": "http://json-ld.org/contexts/person",  
  "id": "http://greggkellogg.net/foaf#me",  
  "type": "Person",  
  "name": "Gregg Kellogg",  
  "knows": "http://www.markus-lanthaler.com/"  
}
```

```
{  
  "@context": {  
    "@vocab": "http://schema.org/",  
    "knows": { "@type": "@id" },  
    "id": "@id",  
    "type": "@type"  
  }  
}
```

- Define referenced *node definition* with chaining

```
{
  "@context": "http://json-ld.org/contexts/person",
  "@id": "http://greggkellogg.net/foaf#me",
  "@type": "Person",
  "name": "Gregg Kellogg",
  "knows": {
    "@id": "http://www.markus-lanthaler.com/",
    "@type": "Person",
    "name": "Markus Lanthaler",
    "knows" "http://greggkellogg.net/foaf#me"
  }
}

{
  "@context": "http://json-ld.org/contexts/person",
  "@graph": [{
    "@id": "http://greggkellogg.net/foaf#me",
    "@type": "Person",
    "name": "Gregg Kellogg",
    "knows": "http://www.markus-lanthaler.com/"
  }, {
    "@id": "http://www.markus-lanthaler.com/",
    "@type": "Person",
    "name": "Markus Lanthaler",
    "knows" "http://greggkellogg.net/foaf#me"
  }
]
```

Language Principles

- More features defined in the [syntax specification](#)*:
 - Ordered Lists, Compact IRIs, Unlabeled Nodes, Reverse Properties, Language Maps, Data Indexing
 - Embedded **@context** definitions
 - Datasets/Named Graphs

* <http://www.w3.org/TR/json-ld/>

It's just JSON

- Express structured data using regular JSON idioms.
- Use external **@context** to alias terms and cast types

```
{
  "verb": "post",
  "published": "2011-02-10T15:04:55Z",
  "language": "en",
  "actor": {
    "objectType": "person",
    "id": "urn:example:person:martin",
    "displayName": "Martin Smith",
    "url": "http://example.org/martin",
    "image": {
      "url": "http://example.org/martin/image.jpg",
      "mediaType": "image/jpeg",
      "width": 250,
      "height": 250
    }
  },
  "object": {
    "objectType": "article",
    "id": "urn:example:blog:abc123/xyz",
    "url": "http://example.org/blog/2011/02/entry",
    "displayName": "Why I love Activity Streams"
  },
  "target": {
    "objectType": "blog",
    "id": "urn:example:blog:abc123",
    "displayName": "Martin's Blog",
    "url": "http://example.org/blog/"
  }
}
```

RDF ✓

```
{
  "@context": "http://json-ld.org/contexts/person",
  "@id": "http://greggkellogg.net/foaf#me",
  "@type": "Person",
  "name": "Gregg Kellogg",
  "knows": {
    "@id": "http://www.markus-lanthaler.com/",
    "@type": "Person",
    "name": "Markus Lanthaler",
    "knows" "http://greggkellogg.net/foaf#me"
  }
}
```


RDF ✓

```
{
  "@context": "http://json-ld.org/contexts/person",
  "@id": "http://greggkellogg.net/foaf#me",
  "@type": "Person",
  "name": "Gregg Kellogg",
  "knows": {
    "@id": "http://www.markus-lanthaler.com/",
    "@type": "Person",
    "name": "Markus Lanthaler",
    "knows" "http://greggkellogg.net/foaf#me"
  }
}
```

RDF ✓

```
{
  "@context": "http://json-ld.org/contexts/person",
  "@id": "http://greggkellogg.net/foaf#me",
  "@type": "Person",
  "name": "Gregg Kellogg",
  "knows": {
    "@id": "http://www.markus-lanthaler.com/",
    "@type": "Person",
    "name": "Markus Lanthaler",
    "knows" "http://greggkellogg.net/foaf#me"
  }
}
```

```
@prefix: schema <http://schema.org/> .
<http://greggkellogg.net/foaf#me> a schema:Person;
  schema:name "Gregg Kellogg";
  shema:knows <http://www.markus-lanthaler.com/> .
```

```
<http://www.markus-lanthaler.com/> a schema:Person
  schema:name "Markus Lanthaler"
  schema:knows <http://greggkellogg.net/foaf#me> .
```

More Information

json-ld.org

w3c

JavaScript

Ruby

Python

PHP

Java

Gregg Kellogg

gregg@greggkellogg.net

<http://greggkellogg.net/>

<http://www.slideshare.net/gkellogg/open-social2013>

@gkellogg