

Network Working Group
Internet-Draft
Intended status: Standards Track
Expires: July 12, 2020

E. Pot

G. Sullice
Acquia, Inc.
January 09, 2020

JSON serialization for Web Linking
draft-pot-json-link-01

Abstract

This specification defines a serialization of Web Linking [[RFC8288](#)] in the JSON [[RFC8259](#)] format.

Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of [BCP 78](#) and [BCP 79](#).

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF). Note that other groups may also distribute working documents as Internet-Drafts. The list of current Internet-Drafts is at <https://datatracker.ietf.org/drafts/current/>.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

This Internet-Draft will expire on July 12, 2020.

Copyright Notice

Copyright (c) 2020 IETF Trust and the persons identified as the document authors. All rights reserved.

This document is subject to [BCP 78](#) and the IETF Trust's Legal Provisions Relating to IETF Documents (<https://trustee.ietf.org/license-info>) in effect on the date of publication of this document. Please review these documents carefully, as they describe your rights and restrictions with respect to this document. Code Components extracted from this document must include Simplified BSD License text as described in Section 4.e of the Trust Legal Provisions and are provided without warranty as described in the Simplified BSD License.

1. Introduction

There are many JSON-based standards and formats that require the need to express a link. Examples can be found in [[draft-kelly-json-hal](#)], [[JSON-API](#)], [[WEBTHING](#)], [[draft-nottingham-json-home](#)], [[COLLECTIONJSON](#)], [[SIREN](#)] and many others.

Because there hasn't been an accepted reference for serializing Web Links in JSON, it's typical for authors of new formats to invent their own. This has resulted in many minor differences between serializations, making it difficult to write generic parsers.

This document is an attempt to define a standard JSON serialization for Web linking. A primary goal is to define a format that's relatively uncontroversial and similar to existing serializations.

Furthermore, this specification defines an optional format for groups of links and a recommendation for defining document-wide links.

2. Format

2.1. The link object.

A link will be encoded as a JSON [[RFC8259](#)] object. The object might support the properties from the following chapters, but only "rel" and "href" are required.

2.1.1. rel

The "rel" property refers to [Section 3.3 of \[RFC8288\]](#). The "rel" property must be a string.

There is no support to encode multiple relation types for a single link. To encode multiple relation types, the link must appear multiple times in the document.

2.1.2. href

The "href" property refers to the Link Target, defined in [Section 3.1 of \[RFC8288\]](#).

The property is required and must be specified as a string.

2.1.3. anchor

The "anchor" attribute is defined in [Section 3.2 of \[RFC8288\]](#). This specification alters the behavior of anchor. By default, if anchor

is not specified the link context is considered to be the URL of the representation it is associated with.

If the link appears alongside a link with the 'self' relation type (for example in [Section 2.2](#) of links, the target of the self link MUST be used as the default link context, unless the anchor attribute is defined.

If the link is not part of a list of links that has a link relation of type 'self', the default behavior is to use the URL of the representation it's associated with.

However, implementors of this specification MAY override this. Because JSON links may have deeper contextual meaning depending on where it appears in the document.

[2.1.4.](#) Other attributes

The link object may also encode the "hreflang", "media", "type" attributes. These properties are all defined in [Section 3.4.1 of \[RFC8288\]](#). In their JSON serialization they are all optional, and must be encoded as a string.

[Section 3.4.1](#) also defines a "title*" attribute, which may contain an alternative encoding for the "title" attribute.

JSON only supports UTF-8 encoding. As such, it is not needed to make this distinction. The link title is always encoded using the "title" property.

[2.1.5.](#) Extension Attributes

Similar to [\[RFC8288\]](#), other documents may define new target attributes for links. Parsers that don't understand any attributes appearing on a link MUST ignore them.

[2.1.6.](#) Example

This section is non-normative.

```
{
  "href": "https://evertpot.com/",
  "rel": "author",
  "title": "Evert Pot"
}
```


2.2. Lists of links

Authors that wish to encode a set of links in a document, SHOULD use an array of links.

2.2.1. Example

This section is non-normative.

```
[
  {
    "href": "https://evertpot.com/",
    "rel": "author",
    "title": "Evert Pot"
  },
  {
    "href": "https://test.example/",
    "rel": "self"
  }
]
```

2.3. Document-level links

If a JSON representation wants to define document-level links, implementors of this specification SHOULD use a top-level "links" property to define these.

The "links" property contains a list of links.

The links appearing in this list are considered semantically equivalent to the links appear in the "Link" header, as defined in [Section 3.5 of \[RFC8288\]](#).

Implementors of this specification MAY make an effort to expose links from the HTTP Link header and the document-level links via a unified interface.

2.3.1. Example

This section is non-normative.


```
{
  "links": [
    {
      "href": "https://evertpot.com/",
      "rel": "author",
      "title": "Evert Pot"
    },
    {
      "href": "https://test.example/",
      "rel": "self"
    }
  ]
}
```

3. IANA considerations

We would like to register the 'application/links+json' media-type for documents wishing to implement this spec.

TBD?

4. References

4.1. Normative References

- [RFC8259] Bray, T., Ed., "The JavaScript Object Notation (JSON) Data Interchange Format", STD 90, [RFC 8259](https://www.rfc-editor.org/info/rfc8259), DOI 10.17487/RFC8259, December 2017, <<https://www.rfc-editor.org/info/rfc8259>>.
- [RFC8288] Nottingham, M., "Web Linking", [RFC 8288](https://www.rfc-editor.org/info/rfc8288), DOI 10.17487/RFC8288, October 2017, <<https://www.rfc-editor.org/info/rfc8288>>.

4.2. Informative References

- [COLLECTIONJSON] Mike Amundsen, ., "Collection+JSON", n.d., <<http://amundsen.com/media-types/collection/format/>>.
- [[draft-kelly-json-hal](https://tools.ietf.org/html/draft-kelly-json-hal)] Kelly, M., "JSON Hypertext A:wpplcation Language", n.d., <<https://tools.ietf.org/html/draft-kelly-json-hal>>.
- [[draft-nottingham-json-home](https://tools.ietf.org/html/draft-nottingham-json-home)] Nottingham, M., "Home Documents for HTTP APIs", n.d., <<https://tools.ietf.org/html/draft-nottingham-json-home>>.

[JSON-API]

"JSON:API", n.d., <<https://jsonapi.org/format/>>.

[SIREN]

Kevin Swiber, ., "Siren: a hypermedia specification for representing entities", n.d., <<https://github.com/kevinswiber/siren>>.

[WEBTHING]

Ben Francis, ., "Web Thing API", n.d., <<https://iot.mozilla.org/wot/>>.

Appendix A. Typescript definitions

```
type Link = {  
  href: string,  
  rel: string,  
  anchor?: string,  
  hreflang?: string,  
  media?: string,  
  type?: string,  
}  
  
type LinkSet = Link[];  
  
type DocumentLinks = {  
  links: LinkSet  
}
```

Appendix B. JSON-SCHEMA definitions**B.1. Link**


```
{
  "$schema": "http://json-schema.org/draft-07/schema#",
  "$id": "...",
  "type": "object",
  "additionalProperties": true,
  "required": [
    "href",
    "rel"
  ],
  "properties": {
    "href": {
      "type": "string",
      "format": "uri-reference"
    },
    "rel": {
      "type": "string",
    },
    "title": {
      "type": "string"
    },
    "type": {
      "type": "string"
    },
    "hreflang": {
      "type": "string",
    },
    "media": {
      "type": "string"
    }
  }
}
```

[Appendix C.](#) Changelog

[C.1.](#) Changes since -??

Authors' Addresses

Evert Pot

Email: me@evertpot.com

URI: <https://evertpot.com/>

Gabriel Sullice
Acquia, Inc.

Email: gabriel@sullice.com

URI: <https://sullice.com>