The Link-Template HTTP Header Field

Abstract

This specification defines the Link-Template HTTP header field,
providing a means for describing the structure of a link between two
resources, so that new links can be generated.

About This Document

This note is to be removed before publishing as an RFC.

The latest revision of this draft can be found at https://ietf-wg-
httpapi.github.io/link-template/draft-ietf-httpapi-link-
template.html. Status information for this document may be found at
https://datatracker.ietf.org/doc/draft-ietf-httpapi-link-template/.

Discussion of this document takes place on the Building Blocks for
HTTP APIs Working Group mailing list (mailto:httpapi@ietf.org),
which is archived at https://mailarchive.ietf.org/arch/browse/
httpapi/. Subscribe at https://www.ietf.org/mailman/listinfo/
httpapi/.

Source for this draft and an issue tracker can be found at https://
github.com/ietf-wg-httpapi/link-template.

Status of This Memo

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1. Introduction

   [URI-TEMPLATE] defines a syntax for templates that, when expanded
   using a set of variables, results in a URI [URI].

   This specification defines a HTTP header field [HTTP] for conveying
   templates for links in the headers of a HTTP message. It is
   complimentary to the Link header field defined in Section 3 of
   [WEB-LINKING], which carries links directly.

1.1. Notational Conventions

   The key words "**MUST**", "**MUST NOT**", "**REQUIRED**", "**SHALL**", "**SHALL NOT**",
   "**SHOULD**", "**SHOULD NOT**", "**RECOMMENDED**", "**NOT RECOMMENDED**", "**MAY**", and
   "**OPTIONAL**" in this document are to be interpreted as described in
   BCP 14 [RFC2119] [RFC8174] when, and only when, they appear in all
   capitals, as shown here.

   This specification uses the following terms from
   [STRUCTURED-FIELDS]: List, String, Parameter.

2. The Link-Template Header Field

The Link-Template header field is a Structured Field
[STRUCTURED-FIELDS] that serializes one or more links into HTTP
message metadata. It is semantically equivalent to the Link header
field defined in Section 3 of [WEB-LINKING], except that it uses URI
Templates [URI-TEMPLATE] to convey the structure of links.

Its value is a List of Strings. Each String is a URI Template, and
Parameters on it carry associated metadata.

For example:

```
Link-Template: "/{username}"; rel="https://example.org/rel/user"
```

indicates that a resource with the relation type "https://
example.org/rel/user" can be found by expanding the "username"
variable into the template given.

The target for the link (as defined in Section 2 of [WEB-LINKING])
is the result of expanding the URI Template [URI-TEMPLATE] (being
converted to an absolute URI after expansion, if necessary).

The context, relation type and target attributes for the link are
determined as defined for the Link header field in Section 3 of
[WEB-LINKING].

Parameters on a templated link have identical semantics to those of
a Link header field. This includes (but is not limited to) the use
of the "rel" parameter to convey the relation type, the "anchor"
parameter to modify the context IRI, and so on. Parameter values
MUST be Strings.

Likewise, the requirements for parameters on templated links are the
same as those for a Link header field.

However, the "anchor" parameter **MAY** contain a URI Template. For
example:

```
Link-Template: </books/{book_id}/author>;
               rel="author" anchor="#{book_id}"
```

Here, the link to the author for a particular book in a list of
books can be found by following the link template.

Implementations **MUST** support all levels of template defined by
[URI-TEMPLATE] in both the rel and anchor parameters.

This specification defines additional semantics for the "var-base"
parameter on templated links; see below.

2.1. The 'var-base' parameter

When a templated link has a 'var-base' parameter, its value conveys
a URI-reference that is used as a base URI for the variable names in
the URI template. This allows template variables to be globally
identified, rather than specific to the context of use.

Dereferencing the URI for a particular variable might lead to more
information about the syntax or semantics of that variable;
specification of particular formats for this information is out of
scope for this document.

To determine the URI for a given variable, the value given is used
as a base URI in reference resolution (as specified in [URI]). If
the resulting URI is still relative, the context of the link is used
as the base URI in a further resolution; see [WEB-LINKING].

For example:

```
Link-Template: "/widgets/{widget_id}"
               rel="https://example.org/rel/widget";
               var-base="https://example.org/vars/"
```

indicates that a resource with the relation type "https://
example.org/rel/widget" can be found by expanding the "https://
example.org/vars/widget_id" variable into the template given.

If the current context of the message that the header appears within
is "https://example.org/", the same information could be conveyed by
this header field:

```
Link-Template: "/widgets/{widget_id}";
               rel="https://example.org/rel/widget";
               var-base="/vars/"
```

3. Security Considerations

The security consideration for the Link header field in
[WEB-LINKING] and those for URI Templates [URI-TEMPLATE] both apply.

4. IANA Considerations

This specification enters the "Link-Template" into the Hypertext
Transfer Protocol (HTTP) Field Name Registry.

```
Field Name: Link-Template
Status: permanent
Specification document: [this document]
```

5. Normative References

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Author's Address

Mark Nottingham
Prahran
Australia

Email: mnot@mnot.net
URI: https://www.mnot.net/