

Network Working Group
Ed.
Internet-Draft
Intended status: Standards Track
Ed.
Expires: January 10, 2008
Microsystems
Ed.

J. Gregorio,

M. Hadley,

Sun

M. Nottingham,

D.

Orchard

BEA Systems,

Inc.

July 9,

2007

URI Template
draft-gregorio-uritemplate-01

Status of this Memo

By submitting this Internet-Draft, each author represents that any applicable patent or other IPR claims of which he or she is aware have been or will be disclosed, and any of which he or she becomes aware will be disclosed, in accordance with [Section 6 of BCP 79](#).

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as Internet-Drafts.

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."

The list of current Internet-Drafts can be accessed at <http://www.ietf.org/ietf/1id-abstracts.txt>.

The list of Internet-Draft Shadow Directories can be accessed at <http://www.ietf.org/shadow.html>.

This Internet-Draft will expire on January 10, 2008.

Copyright Notice

Copyright (C) The IETF Trust (2007).

Abstract

URI Templates are strings that can be transformed into URIs after embedded variables are substituted. This document defines the syntax

and processing of URI Templates.

Gregorio, et al.
1]

Expires January 10, 2008

[Page

Editorial Note

To provide feedback on this Internet-Draft, join the W3C URI mailing list (<http://lists.w3.org/Archives/Public/uri/>) [1].

Table of Contents

1.	Introduction	
3		
2.	Notational Conventions	
3		
3.	URI Template	
4		
3.1.	Template Variables	
4		
3.2.	URI Template Substitution	
4		
3.3.	Using URI Templates	
5		
3.3.1.	Examples	
5		
4.	Security Considerations	
6		
5.	IANA Considerations	
6		
6.	Normative References	
7		
Appendix A.	Contributors	
7		
Appendix B.	Revision History	
7		
	Authors' Addresses	
7		
	Intellectual Property and Copyright Statements	
9		

Gregorio, et al.
2]

Expires January 10, 2008

[Page

1. Introduction

URI Templates are strings that contain embedded variables that are transformed into URIs after embedded variables are substituted.

This is useful when it's necessary to convey the structure of a URI in a well-defined way. For example, documentation of an interface exposed by a Web site might use a template to show people how to find information about a user;

```
http://www.example.com/users/{userid}
```

URI Templates can also be thought of as the basis of a machine-readable forms language; by allowing clients to form their own identifiers based on templates given to them by the URI's authority, it's possible to construct dynamic systems that use more of the URI than traditional HTML forms are able to. For example,

```
http://www.example.org/products/{upc}/buyers?page={page_num}
```

Finally, URI Templates can be used to compose URI-centric protocols without impinging on authorities' control of their URIs. For example, there are many emerging conventions for passing around login information between sites using URIs. Forcing people to use a well-known query parameter isn't good practice, but using a URI parameter allows different sites to specify local ways of conveying the same information;

```
http://login.example.org/login?back={return-uri}
http://auth.example.com/userauth;{return-uri}
```

This specification defines the basic syntax and processing of URI Templates. Each application of URI Templates will need to define its own profile of this specification that indicates what template variables are available, how to convey them to clients, and what their appropriate use is in that context.

2. Notational Conventions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [[RFC2119](#)].

This specification uses the Augmented Backus-Naur Form (ABNF) notation of [[RFC4234](#)]. See [[RFC3986](#)] for the definitions of the URI-reference, reserved, and unreserved rules.

3. URI Template

A URI Template is a sequence of characters that contains one or more embedded template variables, see [Section 3.1](#). A URI Template becomes

a URI when the template variables are substituted with their values (see [Section 3.2](#)). For example:

```
http://example.com/widgets/{widget_id}
```

If the value of the `widget_id` variable is "xyzy", the resulting URI after substitution is:

```
http://example.com/widgets/xyzy
```

3.1. Template Variables

Template variables are the parameterized components of a URI Template. A template variable MUST match the template-var rule.

```
template-char = unreserved
template-name = 1*template-char
template-var  = "{" template-name "}"
```

3.2. URI Template Substitution

Evaluating a URI Template ("substitution") consists of replacing all template variables with their respective string values.

During substitution, the string value of a template variable MUST have any characters that do not match the reserved or unreserved rules (i.e., those characters not legal in URIs without percent encoding) percent-encoded, as per [\[RFC3986\], section 2.1](#). Specific applications of URI Templates MAY specify additional constraints and encoding rules in addition to this.

Any number of template variables MAY appear in a URI Template; a single template-name MAY appear multiple times.

The result of substitution MUST match the URI-reference rule and SHOULD also match any known rules for the scheme of the resulting URI.

Typically, this is ensured by the definitions of the template variables used. For example, they may specify that a variable's value is not to contain certain characters, or that some characters should be percent-encoded before substitution.

3.3. Using URI Templates

Applications using URI Templates will typically need to specify a number of things, including;

- o The template to use.
- o What template variables are available.
- o For each of the variables;
 - * What characters are allowed in the template's value.
 - * What encodings should be applied to the value before substitutions.
 - * How to handle errors such as the output of substitution being an invalid URI.

URI Template processors SHOULD allow applications to indicate that;

- o A variable's value is required to contain at least one character
- o A variable's value is required to match one of a set of supplied options
- o A variable's value is to have all reserved characters, as per [RFC3986](#), percent-escaped before substitution

Processors MAY make additional options available.

3.3.1. Examples

Given the following template names and values:

Name	Value
a	fred
b	barney
c	cheeseburger
d	one two three
e	20% tricky
f	
20	this-is-spinal-tap
scheme	https
p	quote=to+be+or+not+to+be
q	hullo#world

Table 1

(Note that the name 'wilma' has not been defined, and the value of 'f' is the empty string.)

The following URI Templates will be expanded as shown:

```
http://example.org/page1#{a}  
http://example.org/page1#fred
```

```
http://example.org/{a}/{b}/  
http://example.org/fred/barney/
```

```
http://example.org/{a}{b}/  
http://example.org/fredbarney/
```

```
http://example.com/order/{c}/{c}/{c}/  
http://example.com/order/cheeseburger/cheeseburger/cheeseburger/
```

```
http://example.org/{d}  
http://example.org/one%20two%20three
```

```
http://example.org/{e}  
http://example.org/20%25%20tricky
```

```
http://example.com/{f}/  
http://example.com//
```

```
{scheme}://{20}.example.org?date={wilma}&option={a}  
https://this-is-spinal-tap.example.org?date=&option=fred
```

```
http://example.org?{p}  
http://example.org?quote=to+be+or+not+to+be
```

```
http://example.com/{q}  
http://example.com/hullo#world
```

4. Security Considerations

A URI Template does not contain active or executable content. Other security considerations are the same as those for URIs, see [section 7 of RFC3986](#).

5. IANA Considerations

In common with [RFC3986](#), URI scheme names form a registered namespace that is managed by IANA according to the procedures defined in [\[RFC4395\]](#). No IANA actions are required by this document.

6. Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [RFC3986] Berners-Lee, T., Fielding, R., and L. Masinter, "Uniform Resource Identifier (URI): Generic Syntax", STD 66, [RFC 3986](#), January 2005.
- [RFC4234] Crocker, D., Ed. and P. Overell, "Augmented BNF for Syntax Specifications: ABNF", [RFC 4234](#), October 2005.
- [RFC4395] Hansen, T., Hardie, T., and L. Masinter, "Guidelines and Registration Procedures for New URI Schemes", [BCP 115](#), [RFC 4395](#), February 2006.
- [1] <<http://lists.w3.org/Archives/Public/uri/>>

Appendix A. Contributors

The following people made significant contributions to this specification: DeWitt Clinton and James Snell.

Appendix B. Revision History

01

00 - Initial Revision.

Authors' Addresses

Joe Gregorio (editor)

Email: joe@bitworking.org
URI: <http://bitworking.org/>

Marc Hadley (editor)
Sun Microsystems

Email: Marc.Hadley@sun.com
URI: <http://sun.com/>

Internet-Draft
2007

URI Template

July

Mark Nottingham (editor)

Email: mnot@pobox.com

URI: <http://mnot.net/>

David Orchard
BEA Systems, Inc.

Email: dorchard@bea.com

URI: <http://bea.com/>

Full Copyright Statement

Copyright (C) The IETF Trust (2007).

This document is subject to the rights, licenses and restrictions contained in [BCP 78](#), and except as set forth therein, the authors retain all their rights.

This document and the information contained herein are provided on an

"AS IS" basis and THE CONTRIBUTOR, THE ORGANIZATION HE/SHE REPRESENTS

OR IS SPONSORED BY (IF ANY), THE INTERNET SOCIETY, THE IETF TRUST AND

THE INTERNET ENGINEERING TASK FORCE DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF

THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Intellectual Property

The IETF takes no position regarding the validity or scope of any Intellectual Property Rights or other rights that might be claimed to

pertain to the implementation or use of the technology described in this document or the extent to which any license under such rights might or might not be available; nor does it represent that it has made any independent effort to identify any such rights.

Information

on the procedures with respect to rights in RFC documents can be found in [BCP 78](#) and [BCP 79](#).

Copies of IPR disclosures made to the IETF Secretariat and any assurances of licenses to be made available, or the result of an attempt made to obtain a general license or permission for the use

of

such proprietary rights by implementers or users of this specification can be obtained from the IETF on-line IPR repository

at

<http://www.ietf.org/ipr>.

The IETF invites any interested party to bring to its attention any copyrights, patents or patent applications, or other proprietary rights that may cover technology that may be required to implement this standard. Please address the information to the IETF at ietf-ipr@ietf.org.

Acknowledgment

Funding for the RFC Editor function is provided by the IETF Administrative Support Activity (IASA).

Gregorio, et al.
9]

Expires January 10, 2008

[Page