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URI Template
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Abstract

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

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URI Template

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Editorial Note

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1. Introduction

URI Templates are strings that contain embedded variables that are transformed into URIs after embedded variables are substituted. This document defines the structure and syntax of URI Templates.

URI Templates are 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 [[RFC2234](#)]. See [[RFC3986](#)] for reserved and unreserved productions.

[3.](#) Motivation

URI Templates are useful in a number of scenarios including web service documentation and application code. A standard syntax and well-defined substitution rules will improve interoperability.

[4.](#) URI Template

A URI Template is a sequence of characters that contains one or more embedded template variables [Section 4.1](#). A URI Template becomes a URI when the template variables are substituted with the template variables string values, see [Section 4.2](#). The following shows an example URI Template:

```
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
```

[4.1](#) Template Variables

Template variables are the parameterized components of a URI Template, their representation is described below. A template variable MUST match the `template-var` production.

template-char = unreserved

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

[4.2](#) URI Template Substitution

Evaluating a URI Template consists of replacing each occurrence of a template variable with the string value of that variable. Obtaining the string value of a template variable is an application-specific process, this specification places no constraints on the mechanism employed. Template variables MAY appear in a URI Template any number of times.

If the value of a template variable would conflict with a reserved character's purpose as a delimiter, then the conflicting data must be percent-encoded before substitution. That is, merely doing rote substitution on template variables could result in the generation of an invalid URI for a particular scheme. Specifications that use URI Templates are expected to take this into consideration in how they

use such templates.

When the values of any template variables have been substituted into a URI template, the resulting string MUST match the URI-reference production of [RFC 3986](#) and MUST also match the productions for the scheme in the final URI.

This specification presumes that the value of a template variable does not contain characters outside the allowed set for the component(s) of the URI that it parameterizes.

[4.3](#) Examples

Given the following template names and values

Name	Value
-----	-----
a	fred
b	barney
c	cheeseburger
20	this-is-spinal-tap
a~b	none%20of%20the%20above

schema	https
p	quote=to+bo+or+not+to+be
e	
q	hullo#world

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

The following URI Templates will be expanded as shown:

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

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

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

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

```
http://example.org/{a~b}
http://example.org/none%20of%20the%20above
```

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

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

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

http://example.com/{e}/
http://example.com//

The following are examples of URI Template expansions that are not legal.

Name	Value

a	fred barney
b	%

The following URI Templates are expanded with the given values and do not produce legal URIs.

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

http://example.org/{b}/
http://example.org/%/

5. 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](#).

6. IANA Considerations

In common with [RFC3986](#), URI scheme names form a registered namespace that is managed by IANA according to the procedures defined in [[RFC2717](#)]. No IANA actions are required by this document.

7. Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [RFC2234] Crocker, D., Ed. and P. Overell, "Augmented BNF for Syntax Specifications: ABNF", [RFC 2234](#), November 1997.
- [RFC2717] Petke, R. and I. King, "Registration Procedures for URL Scheme Names", [BCP 35](#), [RFC 2717](#), November 1999.
- [RFC3986] Berners-Lee, T., Fielding, R., and L. Masinter, "Uniform Resource Identifier (URI): Generic Syntax", STD 66, [RFC 3986](#), January 2005.
- [1] <<http://lists.w3.org/Archives/Public/uri/>>

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[Appendix B.](#) Revision History

00 - Initial Revision.

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