Workgroup: OAuth Working Group
Internet-Draft:
draft-jones-oauth-jwk-thumbprint-uri-01
Published: 12 January 2022
Intended Status: Standards Track
Expires: 16 July 2022
Authors: M.B. Jones K. Yasuda
Microsoft Microsoft

JWK Thumbprint URI

Abstract

This specification registers a kind of URI that represents a JSON Web Key (JWK) Thumbprint value. JWK Thumbprints are defined in RFC 7638. This enables JWK Thumbprints to be used, for instance, as key identifiers in contexts requiring URIs.

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 16 July 2022.

Copyright Notice

Copyright (c) 2022 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 Revised BSD License text as described in Section 4.e of the Trust Legal Provisions and are provided without warranty as described in the Revised BSD License.

Table of Contents

1. Introduction
2. Requirements Notation and Conventions
3. JWK Thumbprint URI
   3.1. Example JWK Thumbprint URI
4. Security Considerations
5. IANA Considerations
   5.1. OAuth URI Registration
      5.1.1. Registry Contents
6. References
   6.1. Normative References
   6.2. Informative References

Appendix A. Acknowledgements

Appendix B. Document History

Authors' Addresses

1. Introduction

A JSON Web Key (JWK) Thumbprint [RFC7638] is a URL-safe representation of a hash value over a JSON Web Key (JWK) [RFC7517]. This specification defines a URI prefix indicating that the portion of the URI following the prefix is a JWK Thumbprint. This enables JWK Thumbprints to be communicated in contexts requiring URIs, including in specific JSON Web Token (JWT) [RFC7519] claims.

JWK Thumbprints URIs are being used in the [SIOPv2] specification as one kind of subject identifier in a context requiring that the identifier be a URI. In this case, the subject identifier is derived from a public key represented as a JWK. Expressing the identifier as JWK Thumbprint URI enables this kind of identifier to be differentiated from other kinds of identifiers that are also URIs, such as Decentralized Identifiers (DIDs) [DID-Core].

2. Requirements Notation and 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.

3. JWK Thumbprint URI

The following URI prefix is defined to indicate that the portion of the URI following the prefix is a JWK Thumbprint:

*urn:ietf:params:oauth:jwk-thumbprint

The prefix is followed by a colon and a JWK Thumbprint value to form a URI representing a JWK Thumbprint.

3.1. Example JWK Thumbprint URI

Section 3.1 of [RFC7638] contains the following example JWK Thumbprint value:

```
NzbLsXh8uDCcd-6MNwXF4W_7noWXFZAfHkxZsRGC9Xs
```

A complete JWK Thumbprint URI using the above JWK Thumbprint is:

```
urn:ietf:params:oauth:jwk-thumbprint:NzbLsXh8uDCcd-6MNwXF4W_7noWXFZAfH
```

4. Security Considerations

The security considerations of [RFC7638] also apply when using this specification.

5. IANA Considerations

5.1. OAuth URI Registration

This specification registers the following value in the IANA "OAuth URI" registry [IANA.OAuth.Parameters] established by [RFC6755].

5.1.1. Registry Contents

- URN: urn:ietf:params:oauth:jwk-thumbprint
- Common Name: JWK Thumbprint URI
- Change controller: IESG
- Specification Document: [[this specification]]

6. References

6.1. Normative References

[IANA.OAuth.Parameters] IANA, "OAuth Parameters", <http://www.iana.org/assignments/oauth-parameters>.

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, DOI 10.17487/

RFC2119, March 1997, <https://www.rfc-editor.org/info/rfc2119>.

[RFC7638] Jones, M. and N. Sakimura, "JSON Web Key (JWK) Thumbprint", RFC 7638, DOI 10.17487/RFC7638, September 2015, <https://www.rfc-editor.org/info/rfc7638>.

[RFC8174] Leiba, B., "Ambiguity of Uppercase vs Lowercase in RFC 2119 Key Words", BCP 14, RFC 8174, DOI 10.17487/RFC8174, May 2017, <https://www.rfc-editor.org/info/rfc8174>.

6.2. Informative References

[DID-Core] Sporny, M., Guy, A., Sabadello, M., and D. Reed, "Decentralized Identifiers (DIDs) v1.0", 3 August 2021, <https://www.w3.org/TR/2021/PR-did-core-20210803/>.

[RFC6755] Campbell, B. and H. Tschofenig, "An IETF URN Sub-Namespace for OAuth", RFC 6755, DOI 10.17487/RFC6755, October 2012, <https://www.rfc-editor.org/info/rfc6755>.

[RFC7517] Jones, M., "JSON Web Key (JWK)", RFC 7517, DOI 10.17487/RFC7517, May 2015, <https://www.rfc-editor.org/info/rfc7517>.

[RFC7519] Jones, M., Bradley, J., and N. Sakimura, "JSON Web Token (JWT)", RFC 7519, DOI 10.17487/RFC7519, May 2015, <https://www.rfc-editor.org/info/rfc7519>.

[SIOPv2] Yasuda, K. and M. B. Jones, "Self-Issued OpenID Provider v2", 18 December 2021, <https://openid.net/specs/openid-connect-self-issued-v2-1_0.html>.

Appendix A. Acknowledgements

Use cases for this specification were developed in the OpenID Connect Working Group of the OpenID Foundation. Specifically, it is being used a key identifier in the [SIOPv2] specification.

The following individuals also contributed to this specification: John Bradley and Adam Lemmon.

Appendix B. Document History

[[to be removed by the RFC Editor before publication as an RFC]]

-01

*More fully described the motivations for JWK Thumbprint URIs.

-00

*Created initial draft.

Authors' Addresses

Michael B. Jones
Microsoft

Email: mbj@microsoft.com
URI: https://self-issued.info/

Kristina Yasuda
Microsoft

Email: kryasuda@microsoft.com
URI: https://twitter.com/kristinayasuda