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Reputation Data Interchange using HTTP and JSON
draft-ietf-repute-query-http-04

Abstract

This document defines a mechanism to conduct queries for reputation information using the Hypertext Transfer Protocol.

Status of this Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

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This Internet-Draft will expire on May 17, 2013.

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1. Introduction

This document defines a method to query a reputation data service for information about an entity, using the HyperText Transfer Protocol (HTTP) as the transport mechanism and JSON as the payload format.

2. Terminology and Definitions

This section defines terms used in the rest of the document.

2.1. Key Words

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 [KEYWORDS].

2.2. Other Definitions

Other terms of importance in this document are defined in [I-D.REPUTE-MODEL] and [I-D.REPUTE-MEDIA-TYPE].

3. Description

3.1. Query

A reputation query made via [HTTP] encodes the question being asked in the GET instruction of the protocol.

The components to the question being asked comprise the following:

- The subject of the query;
- The name of the host, or the IP address, at which the reputation service is available;
- The name of the reputation application, i.e., the context within which the query is being made;
- Optionally, name(s) of the specific reputation assertions or attributies that are being requested.

The name of the application, if given, MUST be one registered with IANA. A server receiving a query about an unregistered application or one it does not explicitly support MUST return a 404 error code.

The syntax for the [URI] portion of the query is constructed using a

template as per [URI-TEMPLATE]. The following variables MUST be available during template expansion:

application: The name of the application reputation in whose context the request is being made.

scheme: The transport scheme the client will be using for the query.

service: The hostname or IP address being queried.

subject: The subject of the query.

Which scheme(s) can be used depends on how the reputation service provider offers its services. Thus, the template could include a specific scheme as a fixed string in the template, or it might offer it as a variable in the template. If it is a variable, it is up to the client and server to negotiate out-of-band which schemes are supported for client queries. Implementers need to be aware that the template could include a fixed scheme not supported by the client.

The following variables are OPTIONAL, but might be required by the template presented for a specific service:

assertion: A list of one or more specific assertions of interest to the client. If absent, the server MUST infer that all available assertion information is being requested.

Other required or optional query parameters might be defined by documents that register new response sets with IANA. Further, other required or optional query parameters might be defined by specific reputation service providers, though these are private arrangements between client and server and will not be registered with IANA.

Authentication between reputation client and server MAY be accomplished using query extensions, or MAY rely on the capabilities of the transport associated with the selected URI scheme.

The template is retrieved by requesting the [WELL-KNOWN-URI] "repute-template" from the host providing reputation service using HTTP. The server SHOULD return the template in a text/plain reply. If the template cannot be retrieved, the reputation query SHOULD be aborted and/or retried at a later time. The server responding to the template request SHOULD include an Expires field indicating a duration for which the template should be considered valid by clients and not re-queried. Clients SHOULD adhere to the expiration time thus provided or, if none is provided, assume that the template is valid for no less than one day and SHOULD NOT repeat the query.

For example, given the following template:

{scheme}://{service}/{application}/{subject}/{assertion}

A query about the use of the domain "example.org" in the "email-id" application context to a service run at "example.com", where that application declares a required "subject" parameter, requesting the "SPAM" reputation assertion using HTTP to conduct the query with no specific client authentication information would be formed as follows:

http://example.com/email-id/example.org/spam

Matching of the attribute name(s) MUST be case-insensitive.

3.2. Response

The response is expected to be contained in a media type designed to deliver reputons. An media type designed for this purpose, "application/reputon+json", is defined in [I-D.REPUTE-MEDIA-TYPE].

4. IANA Considerations

This document registers the "repute-template" well-known URI in the Well-Known URI registry as defined by [WELL-KNOWN-URI], as follows:

URI suffix: repute-template

Change controller: IETF

Specification document(s): [this document]

Related information: none

5. Security Considerations

This document defines particular uses of existing protocols for a specific application. As such, it does not present new security considerations.

Security considerations relevant to email and email authentication can be found in most of the documents listed in the References sections below. Information specific to use of reputation services can be found in [I-D.REPUTE-CONSIDERATIONS].

6. References

6.1. Normative References

[HTTP] Fielding, R., Gettys, J., Mogul, J., Frystyk, H., Masinter, L., Leach, P., and T. Berners-Lee, "Hypertext Transfer Protocol -- HTTP/1.1", RFC 2616, June 1999.

[I-D.REPUTE-MEDIA-TYPE] Borenstein, N. and M. Kucherawy, "A Media Type for Reputation Interchange", draft-ietf-repute-media-type (work in progress), November 2012.

[I-D.REPUTE-MODEL] Borenstein, N. and M. Kucherawy, "A Model for Reputation Interchange", draft-iet-repute-model (work in progress), November 2012.

[KEYWORDS] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[URI] Berners-Lee, T., Fielding, R., and L. Masinter, "Uniform Resource Identifier (URI): Generic Syntax", RFC 3986, January 2005.

[URI-TEMPLATE] Gregorio, J., Fielding, R., Hadley, M., Nottingham, M., and D. Orchard, "URI Template", draft-gregorio-uritemplate (work in progress), September 2011.

[WELL-KNOWN-URI] Nottingham, M. and E. Hammer-Lahav, "Defining Well-Known Uniform Resource Identifiers (URIs)", RFC 5785, April 2010.

6.2. Informative References

[I-D.REPUTE-CONSIDERATIONS] Kucherawy, M., "Operational Considerations Regarding Reputation Services", draft-ietf-repute-considerations (work in progress), November 2012.

Appendix A. Acknowledgements

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Appendix B. Public Discussion

Public discussion of this set of documents takes place on the domainrep@ietf.org mailing list. See https://www.ietf.org/mailman/listinfo/domainrep.

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