

REPUTE Working Group	N. Borenstein
Internet-Draft	Mimecast
Intended status: Standards Track	M. S. Kucherawy
Expires: May 23, 2012	Cloudmark
	November 20, 2011

A Media Type for Reputation Interchange
draft-ietf-repute-media-type-00

[Abstract](#)

This document defines a media type for exchanging reputation information about an arbitrary class of object.

[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 <http://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 May 23, 2012.

[Copyright Notice](#)

Copyright (c) 2011 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 (<http://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 Simplified BSD License text as described in Section 4.e of the Trust Legal Provisions and are provided without warranty as described in the Simplified BSD License.

[Table of Contents](#)

- *1. [Introduction](#)
- *2. [Terminology and Definitions](#)
 - *2.1. [Keywords](#)
 - *2.2. [Other Definitions](#)

- *3. [Description](#)
- *3.1. [Formal Definition](#)
- *4. [Scores](#)
- *5. [IANA Considerations](#)
- *5.1. [application/reputon Media Type Registration](#)
- *5.2. [Reputation Applications Registry](#)
- *6. [Security Considerations](#)
- *7. [References](#)
- *7.1. [Normative References](#)
- *7.2. [Informative References](#)
- *Appendix A. [Acknowledgments](#)
- *Appendix B. [Public Discussion](#)
- *[Authors' Addresses](#)

[1. Introduction](#)

This memo defines a media type for use when answering a reputation query using the "long form" query defined in RFCxxxx+4, which uses [\[HTTP\]](#). It is part of a series defining the overall reputation query/response structure as well as the concept of reputation "vocabularies" for particular applications.

Also included is the specification for an IANA registry to contain definitions and symbolic names for known reputation vocabularies.

[2. Terminology and Definitions](#)

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

[2.1. Keywords](#)

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 memo are defined in RFCxxxx, the base memo in this document series.

3. Description

A new media type, "application/reputon", is defined for the representation of reputational data. This media type has two optional parameters: "app", which conveys the specific application of reputation data in use, and usually extends the set of data values that MAY be included in the media object itself; and "format", which specifies the format with which the content are relayed.

The default for "format" is "text", which is defined here. Reputons bearing unrecognized format values MUST be ignored.

The body of the media type consists of [\[MAIL\]](#)-style attribute/value pairs. The following are REQUIRED for all applications:

RATER: The identity of the entity providing the reputation information, generally expressed as a DNS domain name.

ASSERTION: A keyword indicating the specific assertion or claim being rated. In the absence of an "app" parameter, the reputon can only indicate generic goodness, with the default assertion "IS-GOOD," but each application is expected to define additional types of ASSERTION.

RATED: The identity of the entity being rated.

RATING: The overall rating score for that entity, expressed as a floating-point number between 0.0 and 1.0 inclusive. See [Section 4](#) for discussion.

The following are OPTIONAL for all applications, to be used in contexts where they are appropriate:

CONFIDENCE: The level of confidence the reputation provider has in the value presented being accurate, expressed as a floating-point number between 0 and 1 inclusive.

RATER-AUTHENTICITY: The level of confidence in that identity being genuine, expressed as a floating-point number between 0 and 1 inclusive.

SAMPLE-SIZE: The number of data points used to compute that score, possibly an approximation. Expressed as an unsigned 64-bit integer. The units are deliberately not specified, since not all reputation service providers will collect data the same way. Consumers will need to determine out-of-band the units being reported and apply this value accordingly within their local policies.

A particular application that registers itself with IANA MAY also define extension attribute/value pairs beyond these standard ones.

Content-type: application/reputon

RATER: RatingsRUs.example.com
RATER-AUTHENTICITY: 1.0
ASSERTION: IS-GOOD
RATED: Alex Rodriguez
RATING: 0.99
SAMPLE-SIZE: 50000

Thus, the following example:

...indicates that we are absolutely sure (1.0) that the entity "RatingsRUs.example.com" consolidated 50000 data points (perhaps from everyone in Yankee Stadium) and concluded that Alex Rodriguez is very very good (0.99) at something. It doesn't tell us what he's good at, and while it might be playing baseball, it could just as well be paying his taxes on time.

Content-type: application/reputon; app="baseball"

RATER: baseball-reference.example.com
RATER-AUTHENTICITY: 1.0
ASSERTION: HITS-FOR-POWER
RATED: Alex Rodriguez
RATING: 0.99
SAMPLE-SIZE: 50000

A more sophisticated usage would define a baseball application with a vocabulary of specific assertions, so that this example:

Content-type: application/reputon; app="baseball"

RATER: baseball-reference.example.com
RATER-AUTHENTICITY: 1.0
ASSERTION: CLUTCH-HITTER
RATED: Alex Rodriguez
RATING: 0.4
SAMPLE-SIZE: 50000

...would indicate that 50000 fans polled by the entity baseball-reference.example.com rate A-Rod very highly in hitting for power, whereas this example:

...would indicate that a similar poll indicated a somewhat weaker consensus that A-Rod tends to choke in critical baseball situations. In practice, most usage of reputons is expected to make use of the "app" parameter to target an application-specific set of assertions.

[3.1. Formal Definition](#)

```

reputon := rater rater-auth assertion *extension
          rated rating sampsize

rater := "RATER:"
        *WSP (atom / quoted-string) [CFWS] CRLF

rater-auth := "RATER-AUTHENTICITY:"
              *WSP 1*DIGIT "." 1*DIGIT [CFWS] CRLF
              ; must be a number between -1 and 1 inclusive

assertion := "ASSERTION:"
             *WSP dot-atom-text [CFWS] CRLF

extension := dot-atom-text %x3A *WSP dot-atom-text [CFWS] CRLF
            ; must be registered with IANA within a reputation
            ; vocabulary registration

rated := "RATED:"
        *WSP (atom / quoted-string) [CFWS] CRLF

rating := "RATING:"
         *WSP 1*DIGIT "." 1*DIGIT [CFWS] CRLF
         ; must be a number between 0 and 1 inclusive

sampsize := "SAMPLE-SIZE:"
           *WSP 1*DIGIT [CFWS] CRLF
           ; must be an unsigned 64-bit integer

```

More formally, using [\[ABNF\]](#), the content of the application/reputon MIME object MUST conform to the following syntax:
 "atom", "quoted-string" and "dot-atom-text" are imported from [\[MAIL\]](#).

[4. Scores](#)

The score presented as the value in the RATING parameter appears as a floating point value between 0.0 and 1.0 inclusive. The intent is that the definition of an assertion within an application will declare what the anchor values 0.0 and 1.0 specifically mean. Generally speaking, 1.0 implies full agreement with the assertion, while 0.0 indicates no support for the assertion.

The definition will also specify the type of scale in use when generating scores, to which all reputation service providers for that application space must adhere. This will allow a client to change which reputation service provider is being queried for a given without having to learn through some out-of-band method what the new provider's values mean. For example, a registration might state that ratings are linear, which would mean a score of "x" is twice as strong as a value of "x/2".

5. IANA Considerations

This memo presents two actions for IANA, namely the creation of the new media type "application/reputon" and the creation of a registry for reputation application types. Another memo in this series creates an initial registry entry for the latter.

5.1. application/reputon Media Type Registration

This section provides the media type registration application from [\[MIME-REG\]](#) for processing by IANA:

To: ietf-types@iana.org

Subject: Registration of media type application/reputon

Type name: application

Subtype name: reputon

Required parameters: none

Optional parameters:

app: Names the reputation application in use within the reputon, which defines the valid assertions and any extensions that may also be valid (i.e., the vocabulary) for that application. These MUST be registered with IANA.

format: Describes the format of the content of the MIME object. The default is "text" which is defined in this memo.

Encoding considerations: "7bit" encoding is sufficient and MUST be used to maintain readability when viewed by non-MIME mail readers.

Security considerations: See [Section 6](#) of [this document].

Interoperability considerations: Implementers MUST ignore any "app" values, attribute/value pairs, or vocabulary items they do not support.

Published specification: [this document]

Applications that use this media type: Any application that wishes to query a service that provides reputation data using the "long form" defined in RFCxxxx. The example application is one that provides reputation expressions about DNS domain names found in email messages.

Additional information: The value of the "app" parameter MUST also be registered with IANA.

Person and email address to contact for further information:

*

Nathaniel

Borenstein <nps@guppylake.com>

*Murray S. Kucherawy <msk@cloudmark.com>

Intended usage: COMMON

Author: *Nathaniel Borenstein

*Murray S. Kucherawy

Change controller: IESG

5.2. Reputation Applications Registry

IANA is requested to create the "Reputation Applications" registry.

This registry will contain names of applications used with the application/reputon media type, as defined by this memo.

New registrations or updates MUST be published in accordance with the "Specification Required" guidelines as described in [\[IANA-CONSIDERATIONS\]](#).

New registrations and updates MUST contain the following information:

1. Name of the application being registered or updated
2. Short description of the application (i.e., the class of entity about which it reports reputation data)
3. The document in which the application is defined
4. New or updated status, which MUST be one of:

current: The application is in current use

deprecated: The application is in current use but its use is discouraged

historic: The application is no longer in current use

5. An optional table of query parameters that are specific to this application; each table entry must include:

Name:

Name of the query parameter

Status: (as above)

Description: A short description of the purpose of this parameter

Syntax: A reference to a description of valid syntax for the parameter's value

Required: "yes" if the parameter is mandatory, "no" otherwise

A document creating a reputation application MUST include:

1. A list of one or more assertions registered within this application; each table entry must include:

Name: Name of the assertion

Description: A short description of the assertion, with specific meanings for values of 0.0 and 1.0

Scale: A short description of the scale used in computing the value (see [Section 4](#) of this memo)

[6. Security Considerations](#)

This memo describes security considerations introduced by the media type defined here.

[TBD]

[7. References](#)

[7.1. Normative References](#)

[ABNF]	Crocker, D. and P. Overell, " Augmented BNF for Syntax Specifications: ABNF ", RFC 5234, January 2008.
--------	--

[7.2. Informative 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.
[IANA-CONSIDERATIONS]	Narten, T. and H. Alvestrand, " Guidelines for Writing an IANA Considerations Section in RFCs ", RFC 5226, May 2008.
[KEYWORDS]	

	Bradner, S., " Key words for use in RFCs to Indicate Requirement Levels ", BCP 14, RFC 2119, March 1997.
[MAIL]	Resnick, P., " Internet Message Format ", RFC 5322, October 2008.
[MIME-REG]	Freed, N. and J. Klensin, " Media Type Specifications and Registration Procedures ", RFC 4288, December 2005.

[Appendix A. Acknowledgments](#)

The authors wish to acknowledge the contributions of the following to this specification: Frank Ellermann, Tony Hansen, Jeff Hodges, John Levine, and David F. Skoll.

[Appendix B. Public Discussion](#)

Public discussion of this suite of memos takes place on the domainrep@ietf.org mailing list. See <https://www.ietf.org/mailman/listinfo/domainrep>.

[Authors' Addresses](#)

Nathaniel Borenstein Borenstein Mimecast
 203 Crescent St., Suite 303 Waltham, MA 02453 USA Phone: +1 781 996 5340 EMail: nsb@guppylake.com

Murray S. Kucherawy Kucherawy Cloudmark 128 King St., 2nd Floor San Francisco, CA 94107 USA Phone: +1 415 946 3800 EMail: msk@cloudmark.com