Network Working Group
Internet-Draft
Intended status: Standards Track
Expires: May 22, 2021

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November 18, 2020

SIP Call-Info Parameters for Rich Call Data
draft-ietf-sipcore-callinfo-rcd-01

Abstract

This document describes a SIP Call-Info header field usage defined to include rich data associated with the identity of the calling party that can be rendered to called party for providing more useful information about the caller or the specific reason for the call. This includes extended comprehensive information about the caller such as what a jCard object can represent for describing the calling party or other call specific information such as describing the reason or intent of the call. The elements defined for this purpose are intended to be extensible to accommodate related information about calls that helps people decide whether to pick up the phone and additionally, with the use of jCard and other elements, to be compatible with the STIR/PASSporT Rich Call Data framework.

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1. Introduction

Traditional telephone network signaling protocols have long supported delivering a 'calling name' from the originating side, though in practice, the terminating side is often left to derive a name from the calling party number by consulting a local address book or an external database. SIP similarly can carry a 'display-name' in the From header field value from the originating to terminating side, though it is an unsecured field that is not commonly trusted. The same is true of information in the Call-Info header field.

To allow calling parties to initiate, and called parties to receive, a more comprehensive, deterministic, and extensible rich call data for incoming calls, we describe new tokens for the SIP [RFC3261] Call-Info header field and a corresponding "purpose" parameter. We also define a new parameter of Call-Info designed for carrying a "reason" value. For this document, depending on the policies of the communications system, calling parties could either be the end user device or an originating service provider, and called parties could also similarly be an end user device or the terminating service provider acting on behalf of the recipient of the call.

Used on its own, this specification assumes that called party user agent can trust the SIP network or the SIP provider to deliver the correct rich call data (RCD) information. This may not always be the case and thus, the entity inserting the Call-Info header field and the UAS relying on it SHOULD be part of the same trust domain [RFC3324]. Alternatively, and likely the recommended approach, is that the entity inserting the call-info header should also sign the caller information via STIR mechanisms [RFC8224] and specifically through the [I-D.ietf-stir-passport-rcd]. This STIR signature would likely be provided by the caller itself or the originating service provider using an authoritative signature to authenticate the information is from the originator and hasn't been tampered with in transmission.

[RFC7852] provides a means of carrying additional data about callers for the purposes of emergency services (especially its Section 4.4 "Owner/Subscriber" information). This specification provides an overlapping functionality for non-emergency cases. Rather than overloading its "EmergencyCallData" Call-Info "purpose" parameter

value, this document defines a separate "purpose" parameter for the more generic delivery of information via jCard [RFC7095]. This document borrows from [RFC7852] the capability to carry a data structure as a body, through the use of the "cid" URI scheme [RFC2392].

2. Terminology

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. Overview

The Call-Info header field, defined in [RFC3261] Section 20.9, defines a purpose parameter currently with "info", "icon", and "card" tokens. This document defines one new purpose value and one new generic parameter for Call-Info.

The value "jcard" is to be used to associate rich call data related to the identity of the calling party in the form of a jCard [RFC7095]. While there is a "card" token that is already defined with similar purpose, there are two primary reasons for the definition and usage of jCard and the use of JSON over the XML based vCard [RFC2426]. First, JSON has become the default and optimally supported for transmission, parsing, and manipulation of data on IP networks. Second, jCard has also been defined in [I-D.ietf-stir-passport-rcd] and has been adopted by PASSporT [RFC8225] because of the usage of JSON Web Tokens (JWT) [RFC7519].

A generic parameter for "call-reason" is to be used to provide a string or other object that is used to convey the intent or reason the caller is calling to help the called party understand better the context of the call and why they may want to answer the call.

4. "jcard" Call-Info Token

The use of the new Call-Info Token "jcard" is for the purpose of supporting RCD associated with the identity of a calling party in a SIP call [RFC3261] Section 20.9. The format of a Call-Info header field when using the "jcard" is as follows.

The Call-Info header should include a URI where the resource pointed to by the URI is a jCard JSON object defined in [RFC7095]. The web server serving this file MUST use the MIME media type for JSON text as application/json with a default encoding of UTF-8 [RFC4627]. This

also MAY be carried in the body of the SIP request bearing this Call-Info via the "cid" URI scheme [RFC2392]. Alternatively, the URI MUST define the use HTTPS or a transport that can validate the integrity of the source of the resource as well as the transport channel the resource is retrieved.

An example of a Call-Info header field is:

```
Call-Info: <https://example.com/jbond.json>;purpose=jcard
```

An example contents of a URL linked jCard JSON file is shown as follows:

```
["vcard",
 [
  ["version", {}, "text", "4.0"],
  ["fn", {}, "text", "James Bond"],
  ["n", {}, "text", ["Bond", "James", "", "", "Mr."]],
  ["adr", {"type":"work"}, "text",
    ["", "", "3100 Massachusetts Avenue NW", "Washington", "DC",
    "20008", "USA"]
  ],
  ["email", {}, "text", "007@mi6-hq.com"],
  ["tel", { "type": ["voice", "text", "cell"], "pref": "1" }, "uri",
    "tel:+1-202-555-1000"],
  ["tel", { "type": ["fax"] }, "uri", "tel:+1-202-555-1001"],
  ["bday", {}, "date", "19241116"]
  ["logo", {}, "uri",
  "https://upload.wikimedia.org/wikipedia/en/c/c5
  /Fleming007impression.jpg"]
 ]
]
```

An example SIP INVITE using the "cid" URI scheme is as follows.

```
INVITE sip:alice@example.com SIP/2.0
Via: SIP/2.0/TLS pc33.atlanta.example.com;branch=z9hG4bKnashds8
To: Alice <sip:alice@example.com>
From: Bob <sip:12155551212@example.com;user=phone>;tag=1928301774>
Call-ID: a84b4c76e66710
Call-Info: <cid:12155551212@example.com>;purpose=jcard;call-reason= \
  "For your ears only"
CSeq: 314159 INVITE
Max-Forwards: 70
Date: Fri, 25 Sep 2015 19:12:25 GMT
Contact: <sip:12155551212@gateway.example.com>
Content-Type: multipart/mixed; boundary=boundary1
Content-Length: ...

--boundary1

Content-Type: application/sdp

v=0
o=UserA 2890844526 2890844526 IN IP4 pc33.atlanta.example.com
s=Session SDP
c=IN IP4 pc33.atlanta.example.com
t=0 0
m=audio 49172 RTP/AVP 0
a=rtpmap:0 PCMU/8000

--boundary1

Content-Type: application/vcard+json
Content-ID: <12155551212@example.com>

["vcard",[["version",{},"text","4.0"],["fn",{},"text","James Bond"
],["n",{},"text",["Bond","James","","","Mr."]],["adr",{"type":
"work"},"text",["","","3100 Massachusetts Avenue NW","Washington",
"DC","20008","USA"]],["email",{},"text","007@mi6-hq.com"],["tel",
{"type":["voice","text","cell"],"pref":"1"},"uri",
"tel:+1-202-555-1000"],["tel",{"type":["fax"]},"uri",
"tel:+1-202-555-1001"],["bday",{},"date","19241116"]["logo",{},
"uri","https://upload.wikimedia.org/wikipedia/en/c/c5
/Fleming007impression.jpg"]]]
```

5. 'call-reason' Call-Info Parameter

In addition to the jCard value defined here, this specification also defines a generic parameter of the Call-Info header called "call-reason". The "call-reason" parameter is intended to convey a short textual message suitable for display to an end user during call alerting. As a general guideline, this message SHOULD be no longer

than 160 characters; displays that support this specification may be forced to truncate messages that cannot fit onto a screen. This message conveys the caller's intention in contacting the callee. It is an optional parameter, and the sender of a SIP request cannot guarantee that its display will be supported by the terminating endpoint. The manner in which this reason is set by the caller is outside the scope of this specification.

One alternative approach would be to use the baseline [RFC3261] Subject header field value to convey the reason for the call. Because the Subject header has seen little historical use in SIP implementations, however, and its specification describes its potential use in filtering, it seems more prudent to define a new means of carrying a call reason indication.

An example of a Call-Info header field value with the "call-reason" parameter follows:

```
Call-Info: <https://example.com/jbond.json>;purpose=jcard;
  call-reason="For your ears only"
```

One can readily imagine a need for more structured call reason data that could be reliably processed automatically. Future versions of this specification may explore ways to provide a structured data object in place of a textual string to support things like internationalization or categories of reason that can be parsed by machines.

6. Usage of jCard and property specific usage

Beyond the definition of the specific properties or JSON arrays associated with each property. This specification defines a few rules above and beyond [RFC7095] specific to making sure there is a mimimum level of supported properties that every implementation of this specification should adhere to. This includes the support of intepreting the value of this property and the ability to render in some form appropriate to the display capabilities of the device. This includes requirements specific to either textual displays and graphics capable displays.

6.1. Identification properties

These types are used to capture information associated with the identification and naming of the entity associated with the jCard.

6.1.1. "fn" property

The "fn" property MUST be supported with the intent of providing a formatted text corresponding to the name of the object the jCard represents. Reference [RFC6350] Section 6.2.1.

Example:
["fn", {}, "text", "Mr. John Q. Public\, Esq."]

6.1.2. "n" property

The "n" property SHOULD be supported with the intent of providing the components of the name of the object the jCard represents. Reference [RFC6350] Section 6.2.2.

Example:
["n", {}, "text", "Public;John;Quinlan;Mr.;Esq."]
["n", {}, "text", "Stevenson;John;Philip,Paul;Dr.;Jr.,M.D.,A.C.P."]

6.1.3. "nickname" property

The "nickname" property SHOULD be supported with the intent of providing the text corresponding to the nickname of the object the jCard represents. Reference [RFC6350] Section 6.2.3.

Example:
["nickname", {}, "text", "Robbie"]
["nickname", {}, "text", "Jim,Jimmie"]
["nickname", {}, "text", "TYPE=work:Boss"]

6.1.4. "photo" property

The "photo" property MUST be supported with the intent of an image or photograph information that annotates some aspect of the object the jCard represents. Reference [RFC6350] Section 6.2.4.

In addition to the definition of jCard, and to promote interoperability and proper formatting and rendering of images, the photo SHOULD correspond to a square image size of the sizes 128x128, 256x256, 512x512, or 1024x1024 pixels.

Example:
["photo", {}, "uri", "http://www.example.com/photos/jqpublic.gif"]

6.2. Delivery Addressing Properties

These properties are concerned with information related to the delivery addressing or label for the jCard object.

6.2.1. "adr" property

The "adr" property MUST be supported with the intent of providing the delivery address of the object the jCard represents. Reference [RFC6350] Section 6.3.1.

Example:
```
["adr", {"type":"work"}, "text",
  ["", "", "3100 Massachusetts Avenue NW", "Washington", "DC",
  "20008", "USA"]
```

6.3. Communications Properties

These properties describe information about how to communicate with the object the jCard represents.

6.3.1. "tel" property

The "tel" property MUST be supported with the intent of providing the telephone number for telephony communication of the object the jCard represents. Reference [RFC6350] Section 6.4.1.

Relative to the SIP From header field this information may provide alternate telephone number or other related telephone numbers for other uses.

Example:
```
["tel", { "type": ["voice", "text", "cell"], "pref": "1" }, "uri",
  "tel:+1-202-555-1000"]
["tel", { "type": ["fax"] }, "uri", "tel:+1-202-555-1001"]
```

6.3.2. "email" property

The "email" property MUST be supported with the intent of providing the electronic mail address for communication of the object the jCard represents. Reference [RFC6350] Section 6.4.2.

Example:
```
["email", {"type":"work"}, "text", "jqpublic@xyz.example.com"]
["email", {"pref":"1"}, "text", "jane_doe@example.com"]
```

6.3.3. "lang" property

The "lang" property MUST be supported with the intent of providing the language(s) that may be used for contacting of the object the jCard represents. Reference [RFC6350] Section 6.4.4.

Example:
["lang", {"type":"work", "pref":"1"}, "language-tag", "en"]
["lang", {"type":"work", "pref":"2"}, "language-tag", "fr"]
["lang", {"type":"home"}, "language-tag", "fr"]

6.4. Geographical Properties

These properties are concerned with information associated with geographical positions or regions associated with the object the jCard represents.

6.4.1. "tz" property

The "tz" property MUST be supported with the intent of providing the time zone of the object the jCard represents. Reference [RFC6350] Section 6.5.1.

Note: Seems the up-to-date reference for where time-zone names are maintained is currently at this web address, https://www.iana.org/time-zones.

Example:
["tz", {}, "text", "Raleigh/North America"]

6.4.2. "geo" property

The "geo" property MUST be supported with the intent of providing the global positioning of the object the jCard represents. Reference [RFC6350] Section 6.5.2.

Example:
["geo", {}, "uri", "geo:37.386013,-122.082932"]

6.5. Organizational Properties

These properties are concerned with information associated with characteristics of the organization or organizational units of the object that the jCard represents.

6.5.1. "title" property

The "title" property MUST be supported with the intent of providing the position or job of the object the jCard represents. Reference [RFC6350] Section 6.6.1.

Example:
["title", {}, "text", "Research Scientist"]

6.5.2. "role" property

The "role" property MUST be supported with the intent of providing the position or job of the object the jCard represents. Reference [RFC6350] Section 6.6.2.

Example:
["role", {}, "text", "Project Leader"]

6.5.3. "logo" property

The "logo" property MUST be supported with the intent of specifying a graphic image of a logo associated with the object the jCard represents. Reference [RFC6350] Section 6.6.3.

Example:
["logo", {}, "uri", "http://www.example.com/pub/logos/abccorp.jpg"]

```
["logo", {}, "uri", "
      AQEEBQAwdzELMAkGA1UEBhMCVVMxLDAqBgNVBAoTI05ldHNjYXBlIENvbW11bm
      ljYXRpb25zIENvcnBvcmF0aW9uMRwwGgYDVQQLExNJbmZvcm1hdGlvbiBTeXN0
      <...the remainder of base64-encoded data...>"]
```

6.5.4. "org" property

The "org" property MUST be supported with the intent of specifying the organizational name and units of the object the jCard represents. Reference [RFC6350] Section 6.6.2.

Example:
["org", {}, "text", "ABC\, Inc.;North American Division;Marketing"]

6.6. Explanatory Properties

These properties are concerned with additional explanations, such as that related to informational notes or revisions specific to the jCard.

6.6.1. "catagories" property

The "catagories" property MUST be supported with the intent of specifying application category information the object the jCard represents. Reference [RFC6350] Section 6.7.1.

Example:
["catagories", {}, "text", "TRAVEL AGENT"]

["catagories", {}, "text", "INTERNET,IETF,INDUSTRY"]

6.6.2. "note" property

The "note" property MUST be supported with the intent of specifying supplemental information or a comment the object the jCard represents. Reference [RFC6350] Section 6.7.2.

Example:
["note", {}, "text", "This fax number is operational 0800 to 1715
EST\, Mon-Fri."]

6.6.3. "sound" property

The "sound" property MUST be supported with the intent of specifying a digital sound content information that annotates some aspect with the object the jCard represents. This property is often used to specify the proper pronunciation of the name property value of the jCard. Reference [RFC6350] Section 6.7.5.

Example:
["sound", {}, "uri", "http://www.example.com/pub/logos/abccorp.mp3"]

["sound", {}, "uri", "data:audio/basic;base64,MIICajCCAdOgAwIBAgICBE
AQEEBQAwdzELMAkGA1UEBhMCVVMxLDAqBgNVBAoTI05ldHNjYXBlIENvbW11bm
ljYXRpb25zIENvcnBvcmF0aW9uMRwwGgYDVQQLExNJbmZvcm1hdGlvbiBTeXN0
<...the remainder of base64-encoded data...>"]

6.6.4. "uid" property

The "uid" property MUST be supported with the intent of specifying a globally unique identifier corresponding to the object the jCard represents. Reference [RFC6350] Section 6.7.6.

Example:
["uid", {}, "uri", "urn:uuid:f81d4fae-7dec-11d0-a765-00a0c91e6bf6"]

6.6.5. "url" property

The "url" property MUST be supported with the intent of specifying a uniform resource locator associated to the object the jCard represents. Reference [RFC6350] Section 6.7.8.

Example:
["url", {}, "uri", "https://example.org/french-rest/chezchic.html"]

6.6.6. "version" property

The "version" property MUST be included and is intended to specify version of the vCard specification used to format this vCard. Reference [RFC6350] Section 6.7.9.

Example:
["version", {}, "text", "4.0"]

7. Extension of jCard

Part of the intent of the usage of jCard is that it has it's own extensibility properties where new properties can be defined to relay newly defined information related to a caller. This capability is inherently supported as part of standard extensibility. However, usage of those new properties should be published and registered following [RFC7095] Section 3.6 or new specifications.

8. Acknowledgements

We would like to thank David Hancock and other members of the STIR working group for helpful suggestions and comments for the creation of this draft.

9. IANA Considerations

9.1. SIP Call-Info Header Field Purpose Token Request

[this RFC] defines the "jcard" token for use as a new token in the Call-Info header in the "Header Field Parameters and Parameter Values" registry defined by [RFC3968].

Header Field	Parameter Name	Predefined Values	Reference
Call-Info	jcard	No	[this RFC]

9.2. SIP Call-Info Header Field Purpose Token Request

[this RFC] defines the "call-reason" generic parameter for use as a new parameter in the Call-Info header in the "Header Field Parameters and Parameter Values" registry defined by [RFC3968]. The parameter's token is "call-reason" and it takes the value of a quoted string.

10. Security Considerations

Revealing information such as the name, location, and affiliation of a person necessarily entails certain privacy risks. SIP and Call-Info has no particular confidentiality requirement, as the information sent in SIP is in the clear anyway. Transport-level security can be used to hide information from eavesdroppers, and the same confidentiality mechanisms would protect any Call-Info or jCard information carried or referred to in SIP.

11. References

11.1. Normative References

[I-D.ietf-stir-passport-rcd]
Peterson, J. and C. Wendt, "PASSporT Extension for Rich Call Data", draft-ietf-stir-passport-rcd-08 (work in progress), November 2020.

[RFC2392] Levinson, E., "Content-ID and Message-ID Uniform Resource Locators", RFC 2392, DOI 10.17487/RFC2392, August 1998, <https://www.rfc-editor.org/info/rfc2392>.

[RFC2426] Dawson, F. and T. Howes, "vCard MIME Directory Profile", RFC 2426, DOI 10.17487/RFC2426, September 1998, <https://www.rfc-editor.org/info/rfc2426>.

[RFC3261] Rosenberg, J., Schulzrinne, H., Camarillo, G., Johnston, A., Peterson, J., Sparks, R., Handley, M., and E. Schooler, "SIP: Session Initiation Protocol", RFC 3261, DOI 10.17487/RFC3261, June 2002, <https://www.rfc-editor.org/info/rfc3261>.

[RFC3324] Watson, M., "Short Term Requirements for Network Asserted Identity", RFC 3324, DOI 10.17487/RFC3324, November 2002, <https://www.rfc-editor.org/info/rfc3324>.

[RFC3968] Camarillo, G., "The Internet Assigned Number Authority (IANA) Header Field Parameter Registry for the Session Initiation Protocol (SIP)", BCP 98, RFC 3968, DOI 10.17487/RFC3968, December 2004, <https://www.rfc-editor.org/info/rfc3968>.

[RFC4627] Crockford, D., "The application/json Media Type for JavaScript Object Notation (JSON)", RFC 4627, DOI 10.17487/RFC4627, July 2006, <https://www.rfc-editor.org/info/rfc4627>.

[RFC6350] Perreault, S., "vCard Format Specification", RFC 6350, DOI 10.17487/RFC6350, August 2011, <https://www.rfc-editor.org/info/rfc6350>.

[RFC7095] Kewisch, P., "jCard: The JSON Format for vCard", RFC 7095, DOI 10.17487/RFC7095, January 2014, <https://www.rfc-editor.org/info/rfc7095>.

[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>.

[RFC7852] Gellens, R., Rosen, B., Tschofenig, H., Marshall, R., and J. Winterbottom, "Additional Data Related to an Emergency Call", RFC 7852, DOI 10.17487/RFC7852, July 2016, <https://www.rfc-editor.org/info/rfc7852>.

[RFC8224] Peterson, J., Jennings, C., Rescorla, E., and C. Wendt, "Authenticated Identity Management in the Session Initiation Protocol (SIP)", RFC 8224, DOI 10.17487/RFC8224, February 2018, <https://www.rfc-editor.org/info/rfc8224>.

[RFC8225] Wendt, C. and J. Peterson, "PASSporT: Personal Assertion Token", RFC 8225, DOI 10.17487/RFC8225, February 2018, <https://www.rfc-editor.org/info/rfc8225>.

11.2. Informative References

[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>.

[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>.

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