

Network Working Group
Internet-Draft
Intended status: Standards Track
Expires: July 13, 2018

R. Gellens
Core Technology Consulting
January 9, 2018

Network Working Group
Internet-Draft
Intended status: Standards Track
Expires: July 15, 2018

R. Gellens
Core Technology Consulting
January 11, 2018

Negotiating Human Language in Real-Time Communications
draft-ietf-slim-negotiating-human-language-22

Negotiating Human Language in Real-Time Communications
draft-ietf-slim-negotiating-human-language-23

Abstract

Users have various human (natural) language needs, abilities, and preferences regarding spoken, written, and signed languages. This document adds new SDP media-level attributes so that when establishing interactive communication sessions ("calls"), it is possible to negotiate (communicate and match) the caller's language and media needs with the capabilities of the called party. This is especially important with emergency calls, where a call can be

Abstract

Users have various human (natural) language needs, abilities, and preferences regarding spoken, written, and signed languages. This document adds new SDP media-level attributes so that when establishing interactive communication sessions ("calls"), it is possible to negotiate (communicate and match) the caller's language and media needs with the capabilities of the called party. This is especially important with emergency calls, where a call can be

skipping to change at page 1, line 43

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 July 13, 2018.

Copyright Notice

Copyright (c) 2018 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

skipping to change at page 1, line 43

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 July 15, 2018.

Copyright Notice

Copyright (c) 2018 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

skipping to change at page 2, line 34

5.2. No Language in Common	7
5.3. Usage Notes	7
5.4. Examples	8
6. IANA Considerations	10
6.1. att-field Table in SDP Parameters	10
6.2. Warn-Codes Sub-Registry of SIP Parameters	11
7. Security Considerations	11
8. Privacy Considerations	11
9. Changes from Previous Versions	11
9.1. Changes from draft-ietf-slim-...-04 to draft-ietf-slim-...-06	11
9.2. Changes from draft-ietf-slim-...-02 to draft-ietf-slim-...-03	12
9.3. Changes from draft-ietf-slim-...-01 to draft-ietf-slim-...-02	12
9.4. Changes from draft-ietf-slim-...-00 to draft-ietf-slim-...-01	12
9.5. Changes from draft-gellens-slim-...-03 to draft-ietf-slim-...-00	12
9.6. Changes from draft-gellens-slim-...-02 to draft-gellens-slim-...-03	12
9.7. Changes from draft-gellens-slim-...-01 to draft-gellens-slim-...-02	13
9.8. Changes from draft-gellens-slim-...-00 to draft-gellens-slim-...-01	13
9.9. Changes from draft-gellens-mmusic-...-02 to draft-gellens-slim-...-00	13
9.10. Changes from draft-gellens-mmusic-...-01 to -02	13
9.11. Changes from draft-gellens-mmusic-...-00 to -01	13
9.12. Changes from draft-gellens-...-02 to draft-gellens-mmusic-...-00	14
9.13. Changes from draft-gellens-...-01 to -02	14
9.14. Changes from draft-gellens-...-00 to -01	15
10. Contributors	15
11. Acknowledgments	15
12. References	15
12.1. Normative References	15
12.2. Informational References	16
Author's Address	16

1. Introduction

A mutually comprehensible language is helpful for human communication. This document addresses the negotiation of human (natural) language and media modality (spoken, signed, written) in real-time communications. A companion document [RFC8255] addresses language selection in email.

Unless the caller and callee know each other or there is contextual

skipping to change at page 4, line 43

Since this is a protocol mechanism, the user equipment (UE client) needs to know the user's preferred languages; while this document does not address how clients determine this, reasonable techniques could include a configuration mechanism with a default of the

skipping to change at page 2, line 34

5.2. No Language in Common	7
5.3. Usage Notes	7
5.4. Examples	8
6. IANA Considerations	10
6.1. att-field Table in SDP Parameters	10
6.2. Warn-Codes Sub-Registry of SIP Parameters	11
7. Security Considerations	11
8. Privacy Considerations	11
9. Changes from Previous Versions	11
9.1. Changes from draft-ietf-slim-...-04 to draft-ietf-slim-...-06	12
9.2. Changes from draft-ietf-slim-...-02 to draft-ietf-slim-...-03	12
9.3. Changes from draft-ietf-slim-...-01 to draft-ietf-slim-...-02	12
9.4. Changes from draft-ietf-slim-...-00 to draft-ietf-slim-...-01	12
9.5. Changes from draft-gellens-slim-...-03 to draft-ietf-slim-...-00	13
9.6. Changes from draft-gellens-slim-...-02 to draft-gellens-slim-...-03	13
9.7. Changes from draft-gellens-slim-...-01 to draft-gellens-slim-...-02	13
9.8. Changes from draft-gellens-slim-...-00 to draft-gellens-slim-...-01	13
9.9. Changes from draft-gellens-mmusic-...-02 to draft-gellens-slim-...-00	13
9.10. Changes from draft-gellens-mmusic-...-01 to -02	13
9.11. Changes from draft-gellens-mmusic-...-00 to -01	14
9.12. Changes from draft-gellens-...-02 to draft-gellens-mmusic-...-00	14
9.13. Changes from draft-gellens-...-01 to -02	15
9.14. Changes from draft-gellens-...-00 to -01	15
10. Contributors	15
11. Acknowledgments	15
12. References	16
12.1. Normative References	16
12.2. Informational References	16
Author's Address	17

1. Introduction

A mutually comprehensible language is helpful for human communication. This document addresses the negotiation of human (natural) language and media modality (spoken, signed, written) in real-time communications. A companion document [RFC8255] addresses language selection in email.

Unless the caller and callee know each other or there is contextual

skipping to change at page 4, line 43

Since this is a protocol mechanism, the user equipment (UE client) needs to know the user's preferred languages; while this document does not address how clients determine this, reasonable techniques could include a configuration mechanism with a default of the

language of the user interface; in some cases, a UE could tie language and media preferences, such as a preference for a video stream using a signed language and/or a text or audio stream using a written/spoken language.

language of the user interface; in some cases, a UE could tie language and media preferences, such as a preference for a video stream using a signed language and/or a text or audio stream using a written/spoken language.

This document does not address user interface (UI) issues, such as if or how a UE client informs a user about the result of language and media negotiation.

1.1. Applicability

Within this document, it is assumed that the negotiating endpoints have already been determined, so that a per-stream negotiation based on the Session Description Protocol (SDP) can proceed.

When setting up interactive communications sessions it is necessary to route signaling messages to the appropriate endpoint(s). This document does not address the problem of language-based routing.

1.1. Applicability

Within this document, it is assumed that the negotiating endpoints have already been determined, so that a per-stream negotiation based on the Session Description Protocol (SDP) can proceed.

When setting up interactive communications sessions it is necessary to route signaling messages to the appropriate endpoint(s). This document does not address the problem of language-based routing.

skipping to change at page 5, line 44

skipping to change at page 5, line 48

5. Solution

An SDP attribute (per direction) seems the natural choice to negotiate human (natural) language of an interactive media stream, using the language tags of BCP 47 [RFC5646].

5. Solution

An SDP attribute (per direction) seems the natural choice to negotiate human (natural) language of an interactive media stream, using the language tags of BCP 47 [RFC5646].

5.1. The 'hlang-send' and 'hlang-recv' attributes

This document defines two media-level attributes starting with 'hlang' (short for "human **interactive** language") to negotiate which human language is selected for use in each interactive media stream. (Note that not all streams will necessarily be used.) There are two attributes, one ending in "-send" and the other in "-recv", registered in Section 6. Each can appear in offers and answers for media streams.

5.1. The 'hlang-send' and 'hlang-recv' attributes

This document defines two media-level attributes starting with 'hlang' (short for "human language") to negotiate which human language is selected for use in each interactive media stream. (Note that not all streams will necessarily be used.) There are two attributes, one ending in "-send" and the other in "-recv", registered in Section 6. Each can appear in offers and answers for media streams.

In an offer, the 'hlang-send' value is a list of one or more language(s) the offerer is willing to use when sending using the media, and the 'hlang-recv' value is a list of one or more language(s) the offerer is willing to use when receiving using the media. The list of languages is in preference order (first is most preferred). When a media is intended for interactive communication using a language in one direction only (e.g., a user with difficulty speaking but able to hear who indicates a desire to send using text and receive using audio), either hlang-send or hlang-recv MAY be omitted. When a media is not primarily intended for language (for example, a video or audio stream intended for background only) both SHOULD be omitted. Otherwise, both SHOULD have the same value. Note that specifying different languages for each direction (as opposed to the same or essentially the same language in different modalities) can make it difficult to complete the call (e.g., specifying a desire to send audio in Hungarian and receive audio in Portuguese).

In an offer, the 'hlang-send' value is a list of one or more language(s) the offerer is willing to use when sending using the media, and the 'hlang-recv' value is a list of one or more language(s) the offerer is willing to use when receiving using the media. The list of languages is in preference order (first is most preferred). When a media is intended for interactive communication using a language in one direction only (e.g., a user with difficulty speaking but able to hear who indicates a desire to send using text and receive using audio), either hlang-send or hlang-recv MAY be omitted. **Note that the media can still be useful in both directions.** When a media is not primarily intended for language (for example, a video or audio stream intended for background only) both SHOULD be omitted. Otherwise, both SHOULD have the same value. Note that specifying different languages for each direction (as opposed to the same or essentially the same language in different modalities) can make it difficult to complete the call (e.g., specifying a desire to send audio in Hungarian and receive audio in Portuguese).

In an answer, 'hlang-send' is the language the answerer will send if using the media for language (which in most cases is one of the languages in the offer's 'hlang-recv'), and 'hlang-recv' is the language the answerer expects to receive if using the media for language (which in most cases is one of the languages in the offer's 'hlang-send').

In an answer, 'hlang-send' is the language the answerer will send if using the media for language (which in most cases is one of the languages in the offer's 'hlang-recv'), and 'hlang-recv' is the language the answerer expects to receive if using the media for language (which in most cases is one of the languages in the offer's 'hlang-send').

In an offer, each value MUST be a list of one or more language tags per BCP 47 [RFC5646], separated by white space. In an answer, each value MUST be one language tag per BCP 47. BCP 47 describes mechanisms for matching language tags. Note that [RFC5646] Section 4.1 advises to "tag content wisely" and not include unnecessary subtags.

In an offer, each value MUST be a list of one or more language tags per BCP 47 [RFC5646], separated by white space. In an answer, each value MUST be one language tag per BCP 47. BCP 47 describes mechanisms for matching language tags. Note that [RFC5646] Section 4.1 advises to "tag content wisely" and not include unnecessary subtags.

When placing an emergency call, and in any other case where the language cannot be inferred from context, in an offer each media stream primarily intended for human language communication SHOULD specify both (or for asymmetrical language use, one of) the 'hlang-send' and 'hlang-recv' attributes.

When placing an emergency call, and in any other case where the language cannot be inferred from context, in an offer each media stream primarily intended for human language communication SHOULD specify the 'hlang-send' and/or 'hlang-recv' attributes for the direction(s) intended for interactive communication.

Clients acting on behalf of end users are expected to set one or both 'hlang-send' and 'hlang-recv' attributes on each media stream primarily intended for human communication in an offer when placing an outgoing session, and either ignore or take into consideration the attributes when receiving incoming calls, based on local configuration and capabilities. Systems acting on behalf of call centers and PSAPs are expected to take into account the attributes when processing inbound calls.

Clients acting on behalf of end users are expected to set one or both 'hlang-send' and 'hlang-recv' attributes on each media stream primarily intended for human communication in an offer when placing an outgoing session, and either ignore or take into consideration the attributes when receiving incoming calls, based on local configuration and capabilities. Systems acting on behalf of call centers and PSAPs are expected to take into account the attributes when processing inbound calls.

skipping to change at page 7, line 12

skipping to change at page 7, line 19

preferred and less preferred combinations of media and language are all accepted). This is not a problem.

preferred and less preferred combinations of media and language are all accepted). This is not a problem.

5.2. No Language in Common

A consideration with the ability to negotiate language is if the call proceeds or fails if the callee does not support any of the languages requested by the caller. This document does not mandate either behavior.

5.2. No Language in Common

A consideration with the ability to negotiate language is if the call proceeds or fails if the callee does not support any of the languages requested by the caller. This document does not mandate either behavior.

If the call is rejected due to lack of any languages in common, it is suggested to use SIP response code 488 (Not Acceptable Here) or 606 (Not Acceptable) [RFC3261] and include a Warning header field

When a call is rejected due to lack of any languages in common, the SIP response has SIP response code 488 (Not Acceptable Here) or 606 (Not Acceptable) [RFC3261] and a Warning header field [RFC3261] with

<p>[RFC3261] in the SIP response. The Warning header field contains a warning code of [TBD: IANA VALUE, e.g., 308] and a warning text indicating that there are no mutually-supported languages; the text SHOULD also contain the supported languages and media.</p> <p>Example:</p> <p>Warning: [TBD: IANA VALUE, e.g., 308] proxy.example.com "Incompatible language specification: Requested languages not supported. Supported languages are: es, en; supported media are: audio, text."</p> <p>5.3. Usage Notes</p>	<p>a warning code of [TBD: IANA VALUE, e.g., 308] and a warning text indicating that there are no mutually-supported languages; the warning text SHOULD also contain the supported languages and media.</p> <p>Example:</p> <p>Warning: [TBD: IANA VALUE, e.g., 308] proxy.example.com "Incompatible language specification: Requested languages not supported. Supported languages are: es, en; supported media are: audio, text."</p> <p>5.3. Usage Notes</p>
<p>skipping to change at page 11, line 27</p>	<p>skipping to change at page 11, line 31</p>
<p>IANA is requested to add a new value in the warn-codes sub-registry of SIP parameters in the 300 through 329 range that is allocated for indicating problems with keywords in the session description. The reference is to this document. The warn text is "Incompatible language specification: Requested languages not supported. Supported languages and media are: [list of supported languages and media]."</p> <p>7. Security Considerations</p> <p>The Security Considerations of BCP 47 [RFC5646] apply here. In addition, if the 'hlang-send' or 'hlang-recv' values are altered or deleted en route, the session could fail or languages incomprehensible to the caller could be selected; however, this is also a risk if any SDP parameters are modified en route.</p> <p>8. Privacy Considerations</p> <p>Language and media information can suggest a user's nationality, background, abilities, disabilities, etc.</p> <p>9. Changes from Previous Versions</p> <p>RFC EDITOR: Please remove this section prior to publication.</p>	<p>IANA is requested to add a new value in the warn-codes sub-registry of SIP parameters in the 300 through 329 range that is allocated for indicating problems with keywords in the session description. The reference is to this document. The warn text is "Incompatible language specification: Requested languages not supported. Supported languages and media are: [list of supported languages and media]."</p> <p>7. Security Considerations</p> <p>The Security Considerations of BCP 47 [RFC5646] apply here. An attacker with the ability to modify signaling could prevent a call from succeeding by altering any of several crucial elements, including the 'hlang-send' or 'hlang-recv' values. RFC 5069 [RFC5069] discusses such threats. Use of TLS or IPSec can protect against such threats. Emergency calls are of particular concern; RFC 6881 [RFC6881], which is specific to emergency calls, mandates use of TLS or IPSec (in ED-57/SP-30).</p> <p>8. Privacy Considerations</p> <p>Language and media information can suggest a user's nationality, background, abilities, disabilities, etc.</p> <p>9. Changes from Previous Versions</p> <p>RFC EDITOR: Please remove this section prior to publication.</p>
<p>skipping to change at page 16, line 20</p>	<p>skipping to change at page 16, line 34</p>
<p>2119 Key Words", BCP 14, RFC 8174, DOI 10.17487/RFC8174, May 2017, <https://www.rfc-editor.org/info/rfc8174>.</p> <p>12.2. Informational References</p> <p>[RFC3264] Rosenberg, J. and H. Schulzrinne, "An Offer/Answer Model with Session Description Protocol (SDP)", RFC 3264, DOI 10.17487/RFC3264, June 2002, <https://www.rfc-editor.org/info/rfc3264>.</p> <p>[RFC8255] Tomkinson, N. and N. Borenstein, "Multiple Language Content Type", RFC 8255, DOI 10.17487/RFC8255, October 2017, <https://www.rfc-editor.org/info/rfc8255>.</p> <p>Author's Address</p> <p>Randall Gellens Core Technology Consulting Email: rg+ietf@coretechnologyconsulting.com</p>	<p>2119 Key Words", BCP 14, RFC 8174, DOI 10.17487/RFC8174, May 2017, <https://www.rfc-editor.org/info/rfc8174>.</p> <p>12.2. Informational References</p> <p>[RFC3264] Rosenberg, J. and H. Schulzrinne, "An Offer/Answer Model with Session Description Protocol (SDP)", RFC 3264, DOI 10.17487/RFC3264, June 2002, <https://www.rfc-editor.org/info/rfc3264>.</p> <p>[RFC5069] Taylor, T., Ed., Tschofenig, H., Schulzrinne, H., and M. Shanmugam, "Security Threats and Requirements for Emergency Call Marking and Mapping", RFC 5069, DOI 10.17487/RFC5069, January 2008, <https://www.rfc-editor.org/info/rfc5069>.</p> <p>[RFC6881] Rosen, B. and J. Polk, "Best Current Practice for Communications Services in Support of Emergency Calling", BCP 181, RFC 6881, DOI 10.17487/RFC6881, March 2013, <https://www.rfc-editor.org/info/rfc6881>.</p> <p>[RFC8255] Tomkinson, N. and N. Borenstein, "Multiple Language Content Type", RFC 8255, DOI 10.17487/RFC8255, October 2017, <https://www.rfc-editor.org/info/rfc8255>.</p> <p>Author's Address</p> <p>Randall Gellens Core Technology Consulting Email: rg+ietf@coretechnologyconsulting.com</p>
<p>36 lines changed or deleted</p>	<p>54 lines changed or added</p>