Ad-Hoc URI List Management in the Session Initiation Protocol (SIP)
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Abstract

This document defines two mechanisms to manage ad-hoc URI lists in SIP. In the first mechanism, the user agent sends an updated version of the entire list to the server. In the second mechanism, the server provides the user agent with a URI (e.g., http) that can be used to manipulate the list using an out-of-band mechanism (e.g., XCAP). We define the Associated-List-Manipulation header field that carries a URI that allows manipulating an ad-hoc list.
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1. Introduction

SIP messages can carry URI lists using the "list" SIP and SIPS URI parameter defined in [3]. An application server receiving a SIP request with a URI list creates a so called ad-hoc URI list, which is valid for the duration of the service provided by the server.

Once an ad-hoc URI list is created at the server, the user agent may need to manipulate it (e.g., add URIs to the list and remove URIs from the list). Section 3 and Section 4 describe two methods to perform ad-hoc URI list management.

2. Terminology

In this document, the key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" are to be interpreted as described in BCP 14, RFC 2119 [1] and indicate requirement levels for compliant implementations.

3. List Substitution

A user agent MAY provide an application server with an updated version of the ad-hoc list by sending a request with a "list" parameter [3] in its Request-URI. The "list" parameter MUST contain a pointer to the updated list. (The method of this request depends on the service being delivered.) On reception of such a request, the application server MUST substitute the previous ad-hoc list with the list referenced by the "list" parameter.

4. Out-of-Band Management

Section 3 describes how to send a complete URI list to an application server that substitutes the previous one. Following this approach, a user agent that wants to modify a single URI in a long URI list needs to resend the whole list.

Still, there are URI list management mechanisms, such as the XCAP usage defined in [2], that allow user agents to manipulate URI lists more efficiently. We define a new SIP header field called Associated-List-Manipulation that allows a server to provide a URI to the client to manipulate the ad-hoc list using an out-of-band mechanism. The XCAP Usage for Resource Lists MUST be supported. Other mechanisms MAY be supported.

The ABNF of the Associated-List-Manipulation header field is:
List-Manipulation = "Associated-List-Manipulation" HCOLON absoluteURI

5. Examples

This section shows how to use the mechanisms described in Section 3 and Section 4 to manipulate the list of participants in an ad-hoc conference. This example illustrates the use of both mechanisms. It does not mandate how ad-hoc conference services have to be implemented.

When the ad-hoc conferencing server in this example receives an initial INVITE with a URI list, it sends out an INVITE to each URI in the list and creates an ad-hoc conference with all of them. If, at a later point, a URI is added to the list, the conference server INVITEs the new user. If a URI is removed from the list, the conference server BYEs the user.

Carol creates an ad-hoc conference on the server by sending the INVITE request shown in Figure 1. The list parameter in the Request-URI points to a MIME body that carries the list of participants.

INVITE sip:ad-hoc@example.com;list=cid:cn35t8jf02@example.com SIP/2.0
Via: SIP/2.0/TCP client.chicago.example.com
;branch=z9hG4bKhjs8ass83
Max-Forwards: 70
To: "Ad-Hoc Conferences" <sip:ad-hoc@example.com>
From: Carol <sip:carol@chicago.example.com>;tag=32331
Call-ID: d432fa84b4c76e66710
CSeq: 1 INVITE
Contact: <sip:carol@client.chicago.example.com>
Allow: INVITE, ACK, CANCEL, OPTIONS, BYE, REFER,
      SUBSCRIBE, NOTIFY
Allow-Events: dialog
Accept: application/sdp, message/sipfrag,
       application/resource-lists+xml
Content-Type: multipart/mixed;boundary="boundary1"
Content-Length: 731

--boundary1
Content-Type: application/sdp
Content-Length: 160

v=0
o=carol 2890844526 2890842807 IN IP4 chicago.example.com
s=Example Subject
c=IN IP4 192.0.0.1
t=0 0
m=audio 20000 RTP/AVP 0
m=video 20002 RTP/AVP 31

--boundary1
Content-Type: application/resource-lists+xml
Content-Length: 367
Content-ID: <cn35t8jf02@example.com>

<?xml version="1.0" encoding="UTF-8"?><resource-lists xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"><list name="ad-hoc-1"><entry name="1" uri="sip:bill@example.com" /></list></resource-lists>--boundary1--

Figure 1: INVITE request

SIP/2.0 200 OK
Via: SIP/2.0/TCP client.chicago.example.com
    ;branch=z9hG4bKhjhs8ass83;received=192.0.2.4
To: "Ad-Hoc Conferences" <sip:ad-hoc@example.com>;tag=733413
From: Carol <sip:carol@chicago.example.com>;tag=32331
Call-ID: d432fa84b4c76e66710
CSeq: 1 INVITE
Contact: <sip:34@example.com>;isfocus
Associated-List-Manipulation: http://xcap.example.com/lists/yourlist
Allow: INVITE, ACK, CANCEL, OPTIONS, BYE, REFER,
     SUBSCRIBE, NOTIFY
Allow-Events: dialog, conference
Accept: application/sdp, application/conference-info+xml,
    application/resource-lists+xml, message/sipfrag
Supported: replaces, join
Content-Type: application/sdp
Content-Length: 312

v=0
o=focus431 2890844526 2890842807 IN IP4 ms5.conf.example.com
s=Example Subject
i=Example Conference Hosted by Example.com
u=http://conf.example.com/3402934234
The conference server responds with the 200 (OK) in Figure 1, which carries the URI for the conference in its Contact header field and a URI for manipulating the URI list in its Associated-List-Manipulation header field.

5.1 List Substitution

Carol wants to remove Bill and Joe from the conference. She sends the re-INVITE in Figure 3 to the conference server with an updated URI list in a "list" parameter.

INVITE sip:34@example.com;isfocus;list=cid:cn35t8j@example.com SIP/2.0  
Via: SIP/2.0/TCP client.chicago.example.com  
;branch=z9hG4bKhjhs8ass83  
Max-Forwards: 70  
To: "Ad-Hoc Conferences" <sip:ad-hoc@example.com>  
From: Carol <sip:carol@chicago.example.com>;tag=32331  
Call-ID: d432fa84b4c76e66710  
CSeq: 2 INVITE  
Contact: <sip:carol@client.chicago.example.com>  
Allow: INVITE, ACK, CANCEL, OPTIONS, BYE, REFER, SUBSCRIBE, NOTIFY  
Allow-Events: dialog  
Accept: application/sdp, message/sipfrag, application/resource-lists+xml  
Conten-Type: multipart/mixed;boundary="boundary1"  
Content-Length: xxx  

--boundary1  
Content-Type: application/sdp  
Content-Length: 160  

v=0  
o=carol 2890844526 2890842807 IN IP4 chicago.example.com  
s=Example Subject  
c=IN IP4 192.0.0.1  
t=0 0  
m=audio 20000 RTP/AVP 0
5.2 Out-of-Band Management

Now, Carol wants to add Alice to the conference. This time, she uses the http URI received in the Associated-List-Manipulation header field. She uses XCAP to add Alice’s URI, so no SIP traffic is exchanged between her and the server.

6. Security Considerations

TBD.

7. IANA Considerations

This document registers the Associated-List-Manipulation SIP header field, which is described in Section 4. This header field is to be added to the header field registry under http://www.iana.org/assignments/sip-parameters.

   Header Name: Associated-List-Manipulation

   Compact Form: (none)

8. Acknowledgments

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Normative References


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