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Conference Establishment Using Request-Contained Lists in the Session
Initiation Protocol (SIP)
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Abstract

This document describes how to create a conference using SIP URI-list services. In particular, we describe a mechanism that allows a client to provide a conference server with the initial list of participants using an INVITE-contained URI-list.

Internet-Draft

INVITE-Contained Lists

September 2004

Table of Contents

1.	Introduction	3
2.	Terminology	3
3.	Providing a Conference Server with a URI-List	3
4.	URI List Format	3
5.	Conference Server Behavior	4
6.	Example	5
7.	Security Considerations	6
8.	Acknowledges	6
9.	References	7
9.1	Normative References	7
9.2	Informational References	7
	Authors' Addresses	7
	Intellectual Property and Copyright Statements	9

Internet-Draft

INVITE-Contained Lists

September 2004

1. Introduction

Section 4.5 of [\[3\]](#) describes how to create a conference using ad-hoc SIP [\[2\]](#) methods. The client sends an INVITE request to a conference factory URI, and receives the actual conference URI, which contains the "isfocus" feature tag, in the Contact header field of a response (typically a 200 OK).

Once the client obtains the conference URI, it can add participants to the newly created conference in several ways, which are described in [\[3\]](#).

Some environments have tough requirements regarding conference establishment time. So, they require the client to be able to request the creation of an ad-hoc conference and to provide the server with the initial set of participants in a single operation. This document describes how to meet this requirement using the mechanism to transport URI lists in SIP messages described in [\[4\]](#).

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. Providing a Conference Server with a URI-List

A client that wants to include the set of initial participants in its initial INVITE to create an ad-hoc conference, adds a body whose disposition type is recipient-list, as defined in [\[4\]](#), with a URI list that contains the participants that the client wants the server to INVITE. The client sends this INVITE to the conference factory URI.

4. URI List Format

As described in [4], specifications of individual URI-list services, like the conferencing service described here, need to specify a default format for recipient-list bodies used within the particular service.

The default format for recipient-list bodies for conferencing UAs (User Agents) and servers is the resource list format defined in [5]. So, conferencing UAs and servers handling recipient-list bodies MUST support this format and MAY support other formats.

Nevertheless, the Extensible Markup Language (XML) Configuration Access Protocol (XCAP) resource list document provides features, such as hierarchical lists and the ability to include entries by reference relative to the XCAP root URI, that are not needed by the conferencing service defined in this document, which only needs to transfer a flat list of URIs between a UA and the conference server. Therefore, when using the default resource list document, conferencing UAs SHOULD use flat lists (i.e., no hierarchical lists) and SHOULD NOT use <entry-ref> elements.

A conference factory application receiving a URI-list with more information than what has just been described MAY discard all the extra information.

Figure 1 shows an example of a flat list that follows the resource list document.

```
<?xml version="1.0" encoding="UTF-8"?>
<resource-lists xmlns="urn:ietf:params:xml:ns:resource-lists"
                xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <list>
    <entry uri="sip:bill@example.com" />
    <entry uri="sip:joe@example.org" />
    <entry uri="sip:ted@example.net" />
  </list>
</resource-lists>
```

Figure 1: URI List

5. Conference Server Behavior

On reception of an INVITE with a recipient-list body as described in [Section 3](#), a conference server MUST follow the rules described in [\[3\]](#) to create ad-hoc conferences. Once the ad-hoc conference is created, the conference server SHOULD attempt to add the participants in the URI list to the conference as if their addition had been requested using any of the methods described in [\[3\]](#) (e.g., using CPCP [\[6\]](#)).

Once the conference server has created the ad-hoc conference and has attempted to add the initial set of participants, the conference server behaves as a regular conference server and MUST follow the rules in [\[3\]](#).

Note that the status code in the response to the INVITE does not provide any information about whether or not the conference server was able to bring the users in the URI-list into the conference.

That is, a 200 (OK) means that the conference was created successfully, that the client that generated the INVITE is in the conference, and that the server understood the URI-list. If the client wishes to obtain information about the status of other users in the conference it SHOULD use general conference mechanisms, such as the conference package [\[7\]](#).

6. Example

The following is an example of an INVITE request, which carries a URI list in a recipient-list body part, sent by a UA to a conference factory application. Note that since the INVITE carries an SDP description as well, it contains a multipart body.

```
INVITE sip:conf-fact@example.com SIP/2.0
Via: SIP/2.0/TCP client.chicago.example.com
    ;branch=z9hG4bKhjhs8ass83
Max-Forwards: 70
To: Conf Factory <sip:conf-fact@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
Content-Type: multipart/mixed;boundary="boundary1"
Content-Length: 690

--boundary1
Content-Type: application/sdp

v=0
o=carol 2890844526 2890842807 IN IP4 chicago.example.com
s=-
c=IN IP4 192.0.2.1
t=0 0
m=audio 20000 RTP/AVP 0
a=rtpmap:0 PCMU/8000
m=video 20002 RTP/AVP 31
a=rtpmap:31 H261/90000

--boundary1
Content-Type: application/resource-lists+xml
Content-Disposition: recipient-list

Camarillo & Johnston

Expires March 24, 2005

[Page 5]

Internet-Draft

INVITE-Contained Lists

September 2004

```
<?xml version="1.0" encoding="UTF-8"?>
<resource-lists xmlns="urn:ietf:params:xml:ns:resource-lists"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <list>
    <entry uri="sip:bill@example.com" />
    <entry uri="sip:joe@example.org" />
    <entry uri="sip:ted@example.net" />
  </list>
</resource-lists>
--boundary1--
```

Figure 2: INVITE request

7. Security Considerations

This document discusses setup of SIP conferences using a request-contained URI-list. Both conferencing and URI-lists services have specific security requirements which will be summarized here. Conferences generally have authorization rules about who may or may not join a conference, what type of media may or may not be used, etc. This information is used by the focus to admit or deny participation in a conference. It is RECOMMENDED that these types of authorization rules be used to provide security for a SIP conference.

For this authorization information to be used, the focus needs to be able to authenticate potential participants. Normal SIP mechanisms including Digest authentication and certificates can be used. These conference specific security requirements are discussed further in the requirements and framework documents.

For conference creation using a list, there are some additional security considerations. The Framework and Security Considerations for SIP URI-List Services [4] discusses issues related to SIP URI-list services. Given that a conference server sending INVITEs to a set of users acts as an URI-list service, implementations of conference servers that handle lists MUST follow the security-related rules in [4]. These rules include mandatory authentication and authorization of clients, and opt-in lists.

8. Acknowledges

Cullen Jennings, Hisham Khartabil, and Jonathan Rosenberg provided useful comments on this document.

9. References

Camarillo & Johnston Expires March 24, 2005 [Page 6]

Internet-Draft INVITE-Contained Lists September 2004

9.1 Normative References

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[9.2](#) Informational References

- [6] Koskelainen, P. and H. Khartabil, "An Extensible Markup Language (XML) Configuration Access Protocol (XCAP) Usage for Conference Policy Manipulation", [draft-koskelainen-xcon-xcap-cpcp-usage-02](#) (work in progress), February 2004.
- [7] Rosenberg, J. and H. Schulzrinne, "A Session Initiation Protocol (SIP) Event Package for Conference State", [draft-ietf-sipping-conference-package-05](#) (work in progress), July 2004.

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Internet-Draft

INVITE-Contained Lists

September 2004

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