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Message-Contained URI-Lists in the Session Initiation Protocol (SIP)  
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Abstract

This document describes how a user agent can provide another user agent with a list of URIs in a SIP message. The way the receiving user agent uses the URIs in the list is method or status code specific.

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## 1. Introduction

Some services require a SIP UA (User Agent) to provide another UA (e.g., a SIP URI-list service acting as a UA server) with a set of URIs. For example, a UA creating a conference needs to provide the conference server with the participants. The same way, a UA requesting presence information from a set of users needs to provide the resource list server with the URIs of the users that belong to the list.

These lists are typically configured using out-of-band methods. For instance, a UA can use XCAP [8] to create a list of URIs and to associate this list with a SIP URI (e.g., sip:myfriends@example.com). It can, then, send a SIP request (an INVITE or a SUBSCRIBE in our previous examples) to that SIP URI.

Still, there is a need to create lists of URIs and send them directly in a SIP message. Transporting the URI list in the SIP message that triggers the service usually helps reduce the service establishment time, and is useful for UAs that do not have access to a server to host their list (and they cannot act as a server themselves).

In any case, the way the application server interprets the URI list received in the request is method specific.

A UA creating a SIP request or response that needs to carry a URI list places the URI list (e.g., an XCAP resource list [4]) in a body part whose disposition type is "uri-list". The way the receiving UA interprets the URI list received is method specific, or, in the case of a response, status code specific.

## 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.](#) The uri-list Disposition Type

We define a new disposition type for the Content-Disposition header field: uri-list. Both requests and responses MAY carry uri-list bodies.

Bodies whose disposition type is uri-list carry a list of URIs. The way a UA receiving a URI list interprets it is method specific, or, in the case of a response, status code specific.

#### [3.1](#) Default URI List Format

The default format for uri-list bodies is the XCAP resource list format defined in [4]. So, SIP entities handling uri-list bodies MUST support this format.

Nevertheless, the XCAP resource list format provides features such as hierarchical lists and list's attributes that are not needed by many services, which only need to transfer a flat list of URIs between two UAs. The amount of information that a URI list needs to carry between two UAs is method or status code specific. Additionally, the way a client and a server negotiate the amount of information needed for a particular service is method specific as well.

A client invoking a particular service SHOULD NOT include more information in its URI list than the service requires. A server providing a particular service MAY discard any extra information which is received in a URI list from the client.

The following is an example of a flat list without attributes.

```
<?xml version="1.0" encoding="UTF-8"?>
<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>
```

```
</list>
</resource-lists>
```

Figure 1: URI List

#### 4. Pointing to External URI Lists

UAs that want to use an external URI list, instead of sending it as a body part, SHOULD use the content indirection mechanism defined in [5]. Indirected body parts are equivalent and have the same treatment as in-line body parts.

#### 5. Example

The following is an example of an INVITE request that carries a URI list in its body. The Request-URI of this INVITE contains a pointer to the body part carrying the list.

```
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: 635

--boundary1
Content-Type: application/sdp

v=0
o=carol 2890844526 2890842807 IN IP4 chicago.example.com
```

```

s=Example Subject
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: uri-list

<?xml version="1.0" encoding="UTF-8"?>
<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

Refer to ([draft-ietf-sipping-uri-list-conferencing-00.txt](#)) for the normative details on how a list can be used with the INVITE method.

## 6. Security Considerations

This document discusses how to carry URI lists in SIP messages. Attackers may attempt to modify URI lists sent between two user agents. This would cause a different service behavior than expected by the user agents. To prevent this attack, user agents SHOULD integrity protect URI lists using mechanisms such as S/MIME, which can also provide URI list confidentiality, if needed.

Some application servers, on reception of a SIP message with a URI list, send SIP requests to the URIs in the list. These application servers are referred to as SIP URI-list services. The Security Considerations Section of the Requirements and Framework for SIP SIP URI-List Services [6] discusses issues related to SIP URI-list

services. Implementations of SIP URI-list services MUST follow the security-related rules in [6]. These rules include mandatory authentication and authorization of clients, and opt-in lists.

## 7. IANA Considerations

This document defines a new Content-Disposition header field disposition type (uri-list) in [Section 3](#). This value should be registered in the IANA registry for Content-Disposition on

<http://www.iana.org/assignments/mail-cont-disp>

with the following description:

uri-list      the body contains a list of URIs

## 8. Acknowledges

Alan Johnston, Orit Levin, and Cullen Jennings provided useful comments on this document.

## 9. References

### 9.1 Normative References

- [1] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [2] Levinson, E., "Content-ID and Message-ID Uniform Resource Locators", [RFC 2392](#), August 1998.
- [3] Resnick, P., "Internet Message Format", [RFC 2822](#), April 2001.

- [4] Rosenberg, J., "An Extensible Markup Language (XML) Configuration Access Protocol (XCAP) Usage for Presence Lists", [draft-ietf-simple-xcap-list-usage-02](#) (work in progress), February 2004.
- [5] Olson, S., "A Mechanism for Content Indirection in Session Initiation Protocol (SIP) Messages",

[draft-ietf-sip-content-indirect-mech-03](#) (work in progress), June 2003.

- [6] Camarillo, G., "Requirements for Session Initiation Protocol (SIP) Exploder Invocation", [draft-camarillo-sipping-exploders-02](#) (work in progress), February 2004.

## 9.2 Informational References

- [7] Freed, N. and N. Borenstein, "Multipurpose Internet Mail Extensions (MIME) Part One: Format of Internet Message Bodies", [RFC 2045](#), November 1996.
- [8] Rosenberg, J., "The Extensible Markup Language (XML) Configuration Access Protocol (XCAP)", [draft-ietf-simple-xcap-02](#) (work in progress), February 2004.

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