              Subscriptions to Request-Contained Resource Lists
                  in the Session Initiation Protocol (SIP)

Status of This Memo

   This document specifies an Internet standards track protocol for the
   Internet community, and requests discussion and suggestions for
   improvements. Please refer to the current edition of the "Internet
   Official Protocol Standards" (STD 1) for the standardization state
   and status of this protocol. Distribution of this memo is unlimited.

Abstract

   This document specifies a way to create subscription to a list of
   resources in SIP. This is achieved by including the list of
   resources in the body of a SUBSCRIBE request. Instead of having a
   subscriber send a SUBSCRIBE request for each resource individually,
   the subscriber defines the resource list, subscribes to it, and gets
   notifications about changes in the resources' states using a single
   SUBSCRIBE dialog.

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1. Introduction

    [RFC4662] specifies how to establish subscriptions to a homogeneous
    resource list in SIP (which is specified in [RFC3261]) and defines
    the procedures for getting notifications about changes in the state
    of the associated resources. Yet, list creation is outside the scope
    of [RFC4662].

    This document specifies a way to create a list with a set of
    resources and subscribe to it using a single SIP request. This is
    achieved by including the list of resources (as defined in [RFC5363])
    in the body of the SUBSCRIBE request.

2. Terminology

    The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT",
    "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this
    document are to be interpreted as described in RFC 2119 [RFC2119].

3. User Agent Client Procedures

    A UAC (User Agent Client) that wants to create a resource list and
    subscribe to it using the mechanism described in this document
    constructs a SUBSCRIBE request with at least one body, whose
    disposition is type "recipient-list" as defined in [RFC5363], that
    contains the URI list. Additionally, the UAC MUST include the
    'recipient-list-subscribe' option-tag (which is registered with the
    IANA in Section 9) in a Require header field. The UAC MUST build the
    rest of the SUBSCRIBE request following the rules in [RFC3265].

    The UAC MUST support the "rlmi+xml" format defined in [RFC4662] and
    signal this by including "rlmi+xml" in the Accept header. The UAC
    MAY support additional formats and include them in the Accept header
    field of the SUBSCRIBE request.

3.1. Response Handling

    The status code in the response to the SUBSCRIBE request does not
    provide any information about whether or not the resource list server
    was able to successfully subscribe to the URIs in the URI list. The
    UAC obtains this information in the notifications sent by the server.

3.2. Subsequent SUBSCRIBE Requests

   The previous sections have specified how to include a URI list in an
   initial SUBSCRIBE request to a resource list server in order to
   subscribe to the state of a set of resources. Once the subscription
   has been created and a dialog between the UAC and the resource list
   server has been established, the UAC can send subsequent SUBSCRIBE
   requests to, for example, extend the duration of the subscription.

   At this point, there are no semantics associated with resource-list
   bodies in subsequent SUBSCRIBE requests (although future extensions
   can define them). Therefore, UACs SHOULD NOT include resource-list
   bodies in subsequent SUBSCRIBE requests to a resource list server.

      Note that a difference between an initial SUBSCRIBE request and
      subsequent ones is that while the initial request is sent to the
      public URI of the resource list, subsequent ones are sent to the
      URI provided by the server when the dialog is established.
      Therefore, from the UAC's point of view, the resource identified
      by the former URI supports recipient-list bodies, while the
      resource identified by the latter does not support them.

4. URI-List Document Format

   [RFC5363] mandates that each URI-list services specification, such as
   the subscription service defined here, specifies the default format
   for the recipient-list bodies used within the particular service.

   The default format for the recipient-list bodies for the subscription
   service defined in this document is the resource list format defined
   in [RFC4826]. UAs (User Agents) generating recipient-list bodies
   MUST support this format and MAY support other formats. Resource
   list servers able to handle recipient-list bodies MUST support this
   format and MAY support other formats.

   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 subscription service
   defined here, which only needs to transfer a flat list of URIs
   between a UA and the resource list server. Therefore, when using the
   default resource list document, UAs SHOULD use flat lists (i.e., no
   hierarchical lists) and SHOULD NOT use <entry-ref> elements. A
   resource list server 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. Resource List Server Behavior

Resource list servers that are able to receive and process SUBSCRIBE
requests with a recipient-list body SHOULD include a 'recipient-list-
subscribe' option-tag in a Supported header field when responding to
OPTIONS requests.

On reception of a SUBSCRIBE request with a URI list, a resource list
server that chooses to accept the "rlmi+xml" format MUST comply with
[RFC4662] for creating the subscription and reporting the changes in
the resources within the created dialog.

5.1. Subsequent SUBSCRIBE Requests

At this point, there are no semantics associated with resource-list
bodies in subsequent SUBSCRIBE requests (although future extensions
may define them). Therefore, a resource list server receiving a
subsequent SUBSCRIBE request with a resource-list body, following
standard SIP procedures, rejects it with a 415 (Unsupported Media
Type) response.

6. Providing a URI to Manipulate a Resource List

A UAC can manipulate a resource list at a resource list server. The
resource list server MAY provide a URI to manipulate the resource
list associated with a subscription using the Call-Info header field
in the NOTIFY request that establishes the subscription. The
"purpose" parameter of the Call-Info header field MUST have a value
of 'list-management', which we register with the IANA in Section 9.
The following is an example of such a header field.

```
Call-Info: <http://xcap.example.com/your-list.xml>
           ;purpose=list-management
```

The lifetime of a resource list to be manipulated by the URI provided
by the server is bundled to the lifetime of the subscription. That
is, the resource list SHOULD be destroyed when the subscription
expires or is otherwise terminated.

Section 7.1 of [RFC3265] does not list the Call-Info header field in
the table of header fields that NOTIFY requests can carry. This
document updates that table so that the Call-Info header field can be
optionally included in NOTIFY requests.

7. Example

The following is an example of a SUBSCRIBE request, which carries a
URI list in its body, sent by a UAC to a resource list server.

```
SUBSCRIBE  sip:rls@example.com SIP/2.0
Via: SIP/2.0/TCP terminal.example.com;branch=z9hG4bKwYb6QREiCL
Max-Forwards: 70
To: RLS <sip:rls@example.com>
From: <sip:adam@example.com>;tag=ie4hbb8t
Call-ID: cdB34qLToC@terminal.example.com
CSeq: 1 SUBSCRIBE
Contact: <sip:terminal.example.com>
Event: presence
Expires: 7200
Require: recipient-list-subscribe
Supported: eventlist
Accept: application/cpim-pidf+xml
Accept: application/rlmi+xml
Accept: multipart/related
Accept: multipart/signed
Accept: multipart/encrypted
Content-Type: application/resource-lists+xml
Content-Disposition: recipient-list
Content-Length: 337

<?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 2: SUBSCRIBE request

8. Security Considerations

    The Security Considerations section of [RFC4662] discusses security
    issues related to resource list servers. Resource list servers
    accepting request-contained URI lists MUST also follow the security
    guidelines given in [RFC4662].

    "Framework and Security Considerations for Session Initiation
    Protocol (SIP) URI-List Services" [RFC5363] discusses issues related
    to SIP URI-list services. Given that a resource list server sending
    SUBSCRIBE requests to a set of users acts as a URI-list service,
    implementations of resource list servers that handle request-
    contained URI lists MUST follow the security-related rules in
    [RFC5363]. These rules include opt-in lists and mandatory
    authentication and authorization of clients.

9. IANA Considerations

    The following sections describe the IANA registration of the 'list-
    management' value for the "purpose" parameter of the Call-Info header
    field and the 'recipient-list-subscribe' SIP option-tag.

9.1. List-Management Purpose Parameter Value

    This document defines the 'list-management' value for the "purpose"
    parameter of the Call-Info header field. A reference to this RFC (in
    double brackets) has been added to the existing "purpose" Call-Info
    parameter entry in the SIP Parameters registry, which currently looks
    as follows:

| | | Predefined | |
Header Field	Parameter Name	Values	Reference
Call-Info	purpose	Yes	[RFC3261]

9.2. recipient-list-subscribe Option-Tag

   This document defines the SIP option tag "recipient-list-subscribe".

   The following row has been added to the "Option Tags" section of the
   SIP Parameter Registry:

   +--------------------------+---------------------------+-----------+
   | Name | Description | Reference |
   +--------------------------+---------------------------+-----------+
recipient-list-subscribe	This option tag is used to	[RFC5367]
	ensure that a server can	
	process the recipient-list	
	body used in a SUBSCRIBE	
	request.	
   +--------------------------+---------------------------+-----------+

10. Acknowledgments

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

11. Normative References

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   [RFC4662] Roach, A.B., Campbell, B., and J. Rosenberg, "A Session
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   [RFC4826] Rosenberg, J., "Extensible Markup Language (XML) Formats
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   [RFC5363] Camarillo, G. and A.B. Roach, "Framework and Security
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