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R. Sparks
Oracle
A. Roach
Mozilla

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Clarifications for the use of REFER with RFC6665
draft-ietf-sipcore-refer-clarifications-00

Abstract

The SIP REFER method relies on the SIP-Specific Event Notification Framework. That framework was revised by RFC6665. This document highlights the implications of the requirement changes in RFC6665, and updates the definition of the REFER method, RFC3515, to clarify and disambiguate the impact of those changes.

Status of This Memo

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1. Conventions and Definitions

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 [RFC2119].

2. Introduction

The SIP REFER method relies on the SIP-Specific Event Notification Framework. That framework was revised by [RFC6665]. This document highlights the implications of the requirement changes in RFC6665, and updates [RFC3515] to clarify and disambiguate the impact of those changes.

Accepting a REFER request (without invoking extensions) results in an implicit SIP-Events subscription. If that REFER was part of an existing dialog, the implicit subscription creates a new, problematic dialog-usage within that dialog [RFC5057]. The "norefersub" extension defined in [RFC4488] asks to suppress this implicit subscription, but cannot prevent its creation.

3. Use of GRUU is mandatory

Section 4.5.1 of [RFC6665] makes GRUU [RFC5627] mandatory for notifiers to implement and use as the local target in the subscription created by the REFER request.

A user agent accepting a REFER that creates a subscription MUST populate its Contact header field with a GRUU.

A UA that will accept a REFER request needs to include a GRUU in the Contact header field of all dialog-forming and target-refresh methods (such as INVITE) [I-D.roach-sipcore-6665-clarification]. This ensures that out-of-dialog REFER requests corresponding to any resulting INVITE dialogs arrive at this UA. Future extensions (such as [I-D.ietf-sipcore-refer-explicit-subscription]) might relax this requirement by defining a REFER request that cannot create an implicit subscription, thus not causing the accepting UA to become an RFC6665 notifier in the context of this dialog.

4. Dialog reuse is prohibited

If a peer in an existing dialog has provided a GRUU as its Contact, sending a REFER that might result in an additional dialog usage within that dialog is prohibited. This is a direct consequence of [RFC6665] requiring the use of GRUU, and the requirements in section 4.5.2 of that document.

A user agent constructing a REFER request that could result in an implicit subscription in a dialog MUST build it as an out-of-dialog message as defined in [RFC3261], unless the remote endpoint is an older, pre-RFC6665 implementation (as determined by the absence of a GRUU in the remote target). Thus, the REFER request will have no tag parameter in its To: header field.

Using the "norefersub" option tag [RFC4488] does not change this requirement, even if used in a "Require" header field. Even if the recipient supports the "norefersub" mechanism, and accepts the request with the option tag in the "Require" header field, it is allowed to return a "Refer-Sub" header field with a value of "true" in the response, and create an implicit subscription.

A user agent wishing to identify an existing dialog (such as for call transfer as defined in [RFC5589]) MUST use the "Target-Dialog" extension defined in [RFC4538] to do so, and user agents accepting REFER MUST be able to process that extension in requests they receive.

If a user agent can be certain that no implicit subscription will be created as a result of sending a REFER request (such as by requiring an extension that disallows any such subscription [I-D.ietf-sipcore-refer-explicit-subscription]), the REFER request MAY be sent within an existing dialog. Such a REFER will be constructed with its Contact header field populated with the dialog's Local URI as specified in section 12 of [RFC3261].

As described in section 4.5.2 of [RFC6665], there are cases where a user agent may fall back to sharing existing dialogs for backwards-

compatibility purposes. This applies to REFER only when the peer has not provided a GRUU as its Contact in the existing dialog (i.e. when the peer is a pre-RFC6665 implementation).

5. Security Considerations

This document introduces no new security considerations directly. The updated considerations in [RFC6665] apply to the implicit subscription created by an accepted REFER request.

6. IANA Considerations

This document has no actions for IANA.

7. Changelog

RFC Editor - please remove this section when formatting this document as an RFC

draft-sparks-sipcore-refer-clarifications-05 to draft-ietf-sipcore-refer-clarifications-00

Attempted to improve the accuracy of the Abstract and Introduction without diluting the essential point of the document.

Added an informative reference to RFC5057.

Adjusted text to more reflect what RFC6665 (as clarified by draft-roach-sipcore-6665-clarification) actually requires, and added a normative reference to that clarification draft. Specifically, the requirement for the _sender_ of a REFER to use a GRUU as its local targetwas removed.

Clarified why the explicit-subscription extensions relieve an in-dialog REFERer from the 6665 requirements for using GRUU as its contact in the INVITE dialog.

8. References

8.1. Normative References

[I-D.roach-sipcore-6665-clarification]
Roach, A., "A clarification on the use of Globally Routable User Agent URIs (GRUUs) in the Session Initiation Protocol (SIP) Event Notification Framework", draft-roach-sipcore-6665-clarification-00 (work in progress), October 2014.

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[RFC3261] Rosenberg, J., Schulzrinne, H., Camarillo, G., Johnston, A., Peterson, J., Sparks, R., Handley, M., and E. Schooler, "SIP: Session Initiation Protocol", RFC 3261, June 2002.

[RFC3515] Sparks, R., "The Session Initiation Protocol (SIP) Refer Method", RFC 3515, April 2003.

[RFC4538] Rosenberg, J., "Request Authorization through Dialog Identification in the Session Initiation Protocol (SIP)", RFC 4538, June 2006.

[RFC5627] Rosenberg, J., "Obtaining and Using Globally Routable User Agent URIs (GRUUs) in the Session Initiation Protocol (SIP)", RFC 5627, October 2009.

[RFC6665] Roach, A., "SIP-Specific Event Notification", RFC 6665, July 2012.

8.2. Informative References

[I-D.ietf-sipcore-refer-explicit-subscription]
Sparks, R., "Explicit Subscriptions for the REFER Method", draft-ietf-sipcore-refer-explicit-subscription-00 (work in progress), November 2014.

[RFC4488] Levin, O., "Suppression of Session Initiation Protocol (SIP) REFER Method Implicit Subscription", RFC 4488, May 2006.

[RFC5057] Sparks, R., "Multiple Dialog Usages in the Session Initiation Protocol", RFC 5057, November 2007.

[RFC5589] Sparks, R., Johnston, A., and D. Petrie, "Session Initiation Protocol (SIP) Call Control - Transfer", BCP 149, RFC 5589, June 2009.

Authors' Addresses

Robert Sparks
Oracle
7460 Warren Parkway
Suite 300
Frisco, Texas 75034
US

Email: rjsparks@nostrum.com

Adam Roach
Mozilla
Dallas, TX
US

Phone: +1 650 903 0800 x863
Email: adam@nostrum.com