

ECRIT Working Group
Internet-Draft
Intended status: Standards Track
Expires: August 19, 2010

M. Patel
InterDigital Communications
February 15, 2010

SOS Uniform Resource Identifier (URI) Parameter for Marking of Session
Initiation Protocol (SIP) Requests related to Emergency Services
draft-patel-ecrit-sos-parameter-08.txt

Abstract

This document defines a new Session Initiation Protocol (SIP) Uniform Resource Identifier (URI) parameter intended for marking SIP registration requests related to emergency services. The URI parameter is extensible to allow future values to be defined if required by other use cases that require specific SIP registrations to be distinctly identified. The usage of this new URI parameter complements the usage of the Service Uniform Resource Name (URN) and is not intended to replace it.

Status of this Memo

This Internet-Draft is submitted to IETF in full conformance with the provisions of [BCP 78](#) and [BCP 79](#).

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as Internet-Drafts.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

The list of current Internet-Drafts can be accessed at <http://www.ietf.org/ietf/lid-abstracts.txt>.

The list of Internet-Draft Shadow Directories can be accessed at <http://www.ietf.org/shadow.html>.

This Internet-Draft will expire on August 19, 2010.

Copyright Notice

Copyright (c) 2010 IETF Trust and the persons identified as the document authors. All rights reserved.

Internet-Draft

SOS URI Parameter for SIP Emergency

February 2010

This document is subject to [BCP 78](http://trustee.ietf.org/license-info) and the IETF Trust's Legal Provisions Relating to IETF Documents (<http://trustee.ietf.org/license-info>) in effect on the date of publication of this document. Please review these documents carefully, as they describe your rights and restrictions with respect to this document. Code Components extracted from this document must include Simplified BSD License text as described in Section 4.e of the Trust Legal Provisions and are provided without warranty as described in the BSD License.

Table of Contents

1.	Introduction	3
2.	Terminology	4
3.	Requirements	4
4.	The "reg-type" URI Parameter	4
4.1.	REGISTER Request	5
4.2.	2xx Response to REGISTER Request	5
4.3.	Backwards compatibility issues	5
5.	Formal Syntax	6
6.	IANA Considerations	6
7.	Security Considerations	7
8.	Acknowledgements	7
9.	References	7
9.1.	Normative References	7
9.2.	Informative References	8
	Author's Address	8

1. Introduction

One way to differentiate a SIP-based emergency call from an ordinary call is by the presence of the Service URN as defined in [RFC 5031](#) [[RFC5031](#)] (and used in the IETF emergency services architecture described in PhoneBCP[I-D.ietf-ecrit-phonebc]). The 3GPP IP Multimedia Subsystem (IMS) emergency services architecture, illustrated in 3GPP TS 23.167 [[3GPP.23.167](#)], specifies that the User Equipment (UE) performs emergency registration prior to or during the initiation of an emergency call. The circumstances where such an emergency registration is beneficial are listed below:

- the UE is not registered with its home network;
- the UE is currently registered but roaming (to ensure that the emergency call is handled in the visited network, as required by some jurisdictions).

Emergency registration is possible only when the UE has sufficient credentials to register with its home network and can detect that an emergency session is initiated. Unfortunately, marking of the emergency registration cannot be fulfilled by the use of the Service URN.

In some countries, it is a regulatory requirement that devices be able to place emergency calls in circumstances where other calls may not be permitted. When a UAC issues an emergency marked REGISTER request it informs the registrar that the contact address and the address-of-record being registered are to be used for emergency calls, and roaming and barring restrictions should not be applied for the registered address-of-record.

Furthermore, distinguishing emergency registration from non-emergency registration allows the registrar to ensure that the contact address associated with previous registration of the address-of-record included in the emergency REGISTER request is not replaced. For

incoming calls, for example, a PSAP call back to a previously made emergency call, addressed to the emergency registered address-of-record can be correctly routed to the contact address and UA from which the original emergency call was placed. In addition, any network based services or UA endpoint based services which may prevent the emergency call or PSAP call back from being successful can be disabled if it can be distinguished that the registered contact address and address-of-record pertain to emergency calls.

This document concentrates on a use case defined by 3GPP as described above. However, the solution proposed does not preclude other systems that require emergency registration to occur prior to placing

an emergency call.

This document proposes a way to mark a REGISTER request as an emergency registration.

[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.](#) Requirements

Req: Where emergency registration is required prior to placing an emergency call, it shall be possible to distinguish emergency registration from non-emergency registration.

[4.](#) The "reg-type" URI Parameter

This section provides an overview of the proposed new URI parameter to be used for marking REGISTER requests related to emergency services.

A new URI parameter "reg-type" is defined in this document. The "reg-type" parameter is appended to a URI consistent with [RFC 3261](#) [[RFC3261](#)]. It is proposed that use of this URI parameter is

restricted to the Contact header included in the REGISTER request (and the 2xx response to the REGISTER request) related to an emergency call only.

The "reg-type" URI parameter SHALL take a value of "sos" to indicate that the REGISTER request pertains to emergency registration. The "reg-type" URI parameter with value "sos" MUST NOT be considered as a replacement for the Service URN for emergency calls originated by a UA.

Other use cases where specific instances of SIP registration need to be identified are also possible. One such case may be by an end-user registering their address-of-record with the specific purpose of making "test" calls within a network. Such cases not specific to the use case identified in this draft for identifying emergency registration are not dealt with in this document. However the "reg-type" URI parameter is extensible to allow other "reg-type" values to be defined in the future.

[4.1.](#) REGISTER Request

In networks where the UA sends a REGISTER request for emergency registration prior to placing an emergency call, the "reg-type" URI parameter with value "sos" MUST be appended to the URI in the Contact header. This serves as an indication to the registrar that the request is for emergency registration.

Example:

```
Contact: "Alice" <sip:alice@example.com;reg-type=sos> ;q=0.7;
expires=3600
```

In the event that more than one Contact header field is included in the REGISTER request, only the contact addresses that include the "reg-type" URI parameter with value "sos" shall be considered as emergency registered contact addresses.

The "reg-type" URI parameter with value "sos" MUST NOT be included in non-REGISTER requests, and MUST NOT be included in REGISTER requests that do not pertain to emergency calls.

[4.2.](#) 2xx Response to REGISTER Request

If the registrar receives a REGISTER request that includes the "reg-type" URI parameter with value "sos" in the Contact header field, the registrar MUST include the "reg-type" URI parameter with value "sos" in the Contact header field in the 200 (OK) response sent by the registrar upon successful registration. The "reg-type" URI parameter with value "sos" is appended to the URI included in the Contact header, thus indicating to the UA that it needs to include this contact address in the Contact header of an INVITE request for emergency call initiation.

[4.3.](#) Backwards compatibility issues

The backwards compatibility scenario considered in this document is where a legacy registrar does not support the "reg-type" URI parameter with value "sos". In this case, if the registrar receives a REGISTER request that includes the "reg-type" URI parameter with value "sos" in the Contact header field, the registrar proceeds with registration procedures and silently ignores the URI-parameter in accordance with [RFC 3261](#)[RFC3261]. This ensures the user is registered and thus can successfully initiate an emergency call.

The drawback of proceeding with registration is if the address-of-record is for example barred or has roaming restrictions applied, then these restrictions will not be lifted and thus registration will

be unsuccessful. This can limit the UA's ability to successfully place an emergency call.

If registration is successful, the 200 (OK) response from a legacy registrar includes the "reg-type" URI parameter with value "sos" in the Contact header field. Thus the UA is unaware that the registrar does not support the "reg-type" URI parameter with value "sos". Providing the registration was successful, the UA's ability to place an emergency call is not compromised. The UA need not know that the registrar does not support the URI parameter.

The consequence of the registrar not supporting the "reg-type" URI parameter with value "sos", in addition to the drawback pertaining to restrictions applied to the address-of-record, are as follows:

- the risk of the registrar overwriting previous registrations of the registered address-of-record, and thus disrupting any on-going non-emergency sessions associated with the UA, its address-of-record and previously registered contact address.

- incoming calls, such as a PSAP call back (to a previously made emergency call) to the registered address-of-record might not be routed correctly to the UA that placed the emergency call, due to not suppressing any network based services such as call forwarding, or UA based services which can divert the call elsewhere, or if the address-of-record is associated to more than one contact address.

5. Formal Syntax

The following syntax specification uses the augmented Backus-Naur Form (BNF) as described in [RFC 5234](#) [[RFC5234](#)].

The "reg-type" URI parameter is a "uri-parameter", as defined by [RFC 3261](#) [[RFC3261](#)].

uri-parameter =/ reg-type-param

reg-type-param = "reg-type=" ("sos" / genvalue)

genvalue = 1*(alphanum / "-" / ".")

6. IANA Considerations

This specification defines one new SIP URI parameter, as per the registry created by [RFC 3969](#) [[RFC3969](#)]

Parameter Name: reg-type

Predefined Values: sos

Reference: [RFCXXXX]

[NOTE TO IANA: Please replace XXXX with the RFC number of this specification.]

[7.](#) Security Considerations

As an identifier, the "reg-type" parameter itself does not raise any particular security issues. The semantic described by the "reg-type" parameter are meant to be well-known so privacy considerations do not apply to the URI parameter. The main possibility of attack involves use of the "reg-type" parameter to bypass the normal procedures in order to achieve fraudulent use of services or to bypass security procedures. The usage of this parameter as described in this document is purely for the purpose of the REGISTER request and hence in presence of user authentication it is ensured that the respective user can be held accountable.

It is RECOMMENDED to log events of misuse of the "reg-type" URI parameter with value "sos", for example by including it in a request or response not related to an emergency call.

[8.](#) Acknowledgements

The author would like to thank Keith Drage, Milo Orsic, Deb Barclay, John-Luc Bakker, Andrew Allen, Hiroshi Ishikawa, Sean Schneyer, Peter Leis, Georg Mayer, Marvin Bienn, Ricky Kaura, Steve Norreys, Laura Liess, AC Mahendran, Roozbeh Atarius, Ramachandran Subramanian and Sandeep Sharma, Brian Rosen, Hannes Tschofenig, Christer Holmberg and Henning Schulzrinne for the discussions and contributions that led to this work.

[9.](#) References

[9.1.](#) Normative References

- [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.

June 2002.

- [RFC5234] Crocker, D. and P. Overell, "Augmented BNF for Syntax Specifications: ABNF", STD 68, [RFC 5234](#), January 2008.
- [RFC3969] Camarillo, G., "The Internet Assigned Number Authority (IANA) Uniform Resource Identifier (URI) Parameter Registry for the Session Initiation Protocol (SIP)", [BCP 99](#), [RFC 3969](#), December 2004.

[9.2](#). Informative References

- [I-D.ietf-ecrit-phonebcg]
Rosen, B. and J. Polk, "Best Current Practice for Communications Services in support of Emergency Calling", [draft-ietf-ecrit-phonebcg-14](#) (work in progress), January 2010.
- [RFC5031] Schulzrinne, H., "A Uniform Resource Name (URN) for Emergency and Other Well-Known Services", [RFC 5031](#), January 2008.
- [3GPP.23.167]
3GPP, "IP Multimedia Subsystem (IMS) emergency sessions", 3GPP TS 23.167 7.12.0, December 2009.

Author's Address

Milan Patel
InterDigital Communications

Email: Milan.Patel@interdigital.com