Universal Emergency Address for SIP-based Internet Telephony

STATUS OF THIS MEMO

Abstract

This document defines a universal emergency SIP URL, sip:sos@domain,
that allows SIP user agents to contact the local emergency number.

1 Introduction

Using the PSTN, emergency help can often be summoned at a designated,
widely known number, regardless of where the telephone was purchased.
However, this number differs between localities. For SIP-based end
systems, it is desirable to have a universal identifier, independent
of location, to simplify the user experience and to allow the device
to perform appropriate processing. Here, we define a common user
identifier, "sos", as the contact mechanism for emergency assistance.

1.1 Terminology

In this document, the key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" are to be interpreted as described in RFC 2119 [1] and indicate requirement levels for compliant SIP implementations.

2 Emergency URL

It is RECOMMENDED that SIP-based [2] end systems and proxy servers support a uniform emergency call identifier, namely the user name "sos" at any domain, e.g.,

    sip:sos@local-domain

Here, "local-domain" is replaced the local domain of the network to which the user agent is connected. For example, if a UA is currently in the "example.com" domain, it would use sip:sos@example.com. If the system does not know the local domain, it MAY use the domain from its address-of-record.

In addition, user agents and proxies SHOULD also recognize the telephone numbers 911 and 112, expressed as a tel URL such as tel:911 and tel:112, for this purpose. Where feasible, user agents SHOULD recognize additional, local emergency numbers. Outbound proxy servers MUST be configurable to recognize additional local emergency numbers. [? TBD]

> There are about 60 short numbers for emergency services in the world; including them all is not practical, as that would interfere with existing local two, three and four-digit dialing plans.

In addition, we define subaddresses of sos, sos.fire, sos.rescue, sos.police, to represent the local fire, rescue (ambulance) and police emergency contacts, respectively.

> In some areas, these emergency services use different numbers.

3 Request Handling

A user agent SHOULD direct such a request to a outbound proxy server, if configured, or send the request to the SIP multicast address.

It is possible that there are several SIP proxies listening to the same multicast address, each routing the request independently to different emergency call centers. Proxies in such configurations MUST take steps to prevent this from occuring, for example to route the call based on the caller's identity or location. Determining and conveying the location of the caller is beyond the scope of this document.

> The multicast mechanism differs slightly from standard SIP processing; the use of an outbound proxy conforms to standard procedures. Multicast allows systems to make emergency calls with minimal configuration.

Using a proxy server that is local to the user agent is more likely to reach a geographically local server, although that is not guaranteed if virtual private networks are being used.

The "sos" user name and user names starting with "sos." MUST NOT be assigned to any regular user. It is RECOMMENDED that SIP MESSAGE requests are directed to a TTY-for-the-deaf translator.

User agent servers and proxy servers MUST NOT require that the user agent client be registered or authenticated in order to place an emergency call.

For testing purposes, OPTIONS messages to the user "sos" and the "sos.*" addresses (sos.fire, etc.) SHOULD return an indication whether the address is defined, but cause no further action. It is RECOMMENDED that user agents periodically automatically check for the availability of the "sos"identifier and alert the user if the check fails. The period of such automated checks SHOULD NOT be less than once per day and MUST be randomly placed over the testing interval.

Any proxy, outbound or otherwise, that receives such a request MUST forward (proxy) or redirect the request to the appropriate local emergency number (e.g., 911 in the United States or 112 in Europe). Typically, the proxy server routes the call to an appropriate PSTN gateway, translating the request URI to the local emergency number. Any SIP PSTN gateway shall translate this emergency identifier to the locally supported emergency number.

If a proxy receives a "sos.*" request (such as sos.fire), the proxy forwards it to the appropriate emergency service. If it does not recognize the suffix (e.g., fire), it MUST forward the request to the appropriate general emergency contact, handling it as if the address was "sos".

It is beyond the scope of this document how the proxy determines the
appropriate public safety answering point or how it determines the
physical location of the SIP UA making the request.

TBD: Should something like sip:sos@localhost be supported, for SIP
phones that do not know which is the local domain? (Generally, SIP
UAs would determine this information via DHCP or inverse DNS lookup
of their IP address.) Alternatively, should a UA always use the AOR
domain if the UA knows that sos is supported "at home"? This avoids
that a non-sos-supporting local proxy bounces the request, but still
allows intercept by the outbound proxy.

4 Security Considerations

The SIP specification [2] details a number of security
considerations. Security for emergency calls has conflicting goals,
namely to make it as easy and reliable as possible to reach emergency
services, while discouraging and possibly tracing prank calls. It
appears unlikely that classical authentication mechanisms can be
required by emergency call centers, but SIP proxy servers may be able
to add identifying information.

5 Bibliography

[1] S. Bradner, "Key words for use in RFCs to indicate requirement
levels," Request for Comments 2119, Internet Engineering Task Force,
Mar. 1997.

[2] M. Handley, H. Schulzrinne, E. Schooler, and J. Rosenberg, "SIP:
session initiation protocol," Request for Comments 2543, Internet
Engineering Task Force, Mar. 1999.

A. Vaha-Sipila, "URLs for telephone calls," Request for Comments
2806, Internet Engineering Task Force, Apr. 2000.

6 Acknowledgements

James Polk and Brian Rosen contributed helpful comments.

7 Authors' Addresses

Henning Schulzrinne
Dept. of Computer Science
Columbia University
1214 Amsterdam Avenue
New York, NY 10027
USA
electronic mail: schulzrinne@cs.columbia.edu