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Universal Emergency Address for SIP-based Internet Telephony

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Abstract

This document defines a universal emergency SIP URI, 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, even though it is often the same for a country or region (such as many countries in the European Union). 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 Requirements

A single, global (set of) identifiers for emergency services is highly desirable, as it allows end system and network devices to be built that recognize such services and can act appropriately. Such actions may include restricting the functionality of the end system, providing special features, overriding user service constraints or routing session setup messages. The details of the emergency service and the associated end system and network server policies can be specific to jurisdictions and are beyond the scope of this document.

3 Emergency URI

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@example.com

The host part of the emergency URI SHOULD be the host portion of the address-of-record of the caller.

> The domain-of-record was chosen since a SIP user agent may not be able to determine the local domain it is visiting. This also allows each user to test this facility, as the user can ensure that such services are operational in his home domain. An outbound proxy in the visited domain can handle the call if it believes to be in a position to provide appropriate emergency services.

In addition, user agents and proxies SHOULD also recognize the telephone numbers 911 and 112, expressed as a "tel" URI [3] 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.

> 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 for specific emergency services:

sos.fire	fire brigade
sos.rescue	ambulance (rescue)
sos.marine	marine guard
sos.police	police (law enforcement)
sos.mountain	mountain rescue

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

4 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 if there is no outbound proxy server.

> Multicast offers additional robustness to visitors if firewalls prevent contacting the home domain and if the outbound proxy is configured by some non-DHCP means inaccessible to a visiting user.

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.

5 Alternatives Considered

The scheme proposed here follows the convention of RFC 2142 [4]. One drawback is that it may conflict with locally assigned addresses of the form "sos@somewhere".

There are a number of possible alternatives, each with their own set of advantages and problems:

tel:sos This solution avoids name conflicts, but is not really a

valid "tel" URI. It also only works if every outbound proxy knows how to route requests to a proxy that can reach emergency services. The SIP URI proposed here only requires a user's home domain to be appropriately configured.

URI parameter: One could create a special URI, such as "aor-domain;user=sos". This avoids the name conflict problem.

Special domain: A special domain, such as "fire@sos.int" could be used to identify emergency calls. This has similar properties as the "tel:sos" URI, except that it is indeed a valid URI.

6 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.

7 Bibliography

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

[2] J. Rosenberg, H. Schulzrinne, G. Camarillo, A. Johnston, J. Peterson, R. Sparks, M. Handley, and E. Schooler, "SIP: Session initiation protocol," RFC 3261, Internet Engineering Task Force, May 2002.

[3] A. Vaha-Sipila, "URLs for telephone calls," RFC 2806, Internet Engineering Task Force, Apr. 2000.

[4] D. Crocker, "Mailbox names for common services, roles and functions," RFC 2142, Internet Engineering Task Force, May 1997.

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