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IANA Registration for the enumservice-subtype 'sip:lr' draft-lendl-enum-sip-lr-00

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Abstract

This document requests IANA registration of an enumservice-subtype for loose route variant for SIP, the Session Initiation Protocol. This subtype allows for the routing of SIP messages addressed to tel: Uniform Resource Identifiers (URIs) according to [I-D.rosenberg-sip-ua-loose-route].

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1. Preface

There is discussion in the IETF SIP working group regarding the introduction of a distinction between "routing" and "retargeting" of SIP calls. No consensus has been reached yet. This document is based on one of the proposals ([I-D.rosenberg-sip-ua-loose-route]).

The purpose of this I-D is to stimulate discussion in the ENUM WG on what the implications could be if the ua-loose-route idea is standardized.

2. Introduction

E.164 Number Mapping (ENUM) [RFC3761] uses the Domain Name System (DNS) [RFC1035] to refer from E.164 numbers [refs.E164] to Uniform Resource Identifiers (URIs) [RFC3986]. Specific services to be used with ENUM must be registered with IANA. [I-D.ietf-enum-enumservices-guide] describes the process of such an Enumservice registration.

The enumservice registration for SIP Addresses-of-Record [RFC3764] defines a mapping from E.164 telephone number to a SIP AoR which can be used by SIP devices to retarget a telephone number based call towards a SIP AoR. INVITE messages generated by this process use the retrieved AoR as the Request URI.

If further call routing hops are done based on the original telephone number (TN), the ENUM entry often contains not a true AoR, but something like sip:TN@nexthop.example.com;user=phone. The SIP proxy at that next hop extracts the TN from the Request URI and applies his own TN-based routing algorithm to determine the next steps.

According to [I-D.rosenberg-sip-ua-loose-route], this is a clear example of a "routing" operation and not a "retargetting" operation, as from a logical point of view the call is still addressed to the same telephone number. Consequently, the Request-URI should be kept, and only a Route header should be inserted to indicate the next SIP hop. For backward compatibility reasons, it is necessary (Section 6, last paragraph in [I-D.rosenberg-sip-ua-loose-route]) that the next hop indicates that he supports loose-route.

This subtype for the "sip" enumservice does exactly that: it allows the destination network to announce that it supports loose routing as defined by [I-D.rosenberg-sip-ua-loose-route].

3. ENUM Service Registration - sip:lr

The following template contains information required for the IANA registrations of the "lr" subtype for the Enumservice "sip", according to [I-D.ietf-enum-enumservices-guide]:

Enumservice Type: "sip"

Enumservice Subtype: "lr"

URI Schemes: "sip"

Functional Specification:
This Enumservice/subtype indicates that the resource identified is a SIP next hop towards the endpoint identified by the telephone number as defined by [I-D.rosenberg-sip-ua-loose-route].

Security Considerations: see Section 5

Intended Usage: COMMON

Registration Document: This document's RFC number once it is published.

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4. Example

An example ENUM entry indicating a SIP next hop could look like:

```
$ORIGIN 6.9.4.0.6.9.4.5.1.1.4.4.e164.arpa.
@  IN NAPTR  ( 100 10 "u"
               "E2U+sip:lr"
               "!^.*$!sip:p1.example.com;lr!" .
             )
```

To visualize the difference between how "sip" and "sip:lf" entries are interpreted, consider the following entries:

```
$ORIGIN 6.9.4.0.6.9.4.5.1.1.4.4.e164.arpa.
@  IN NAPTR  ( 100 10 "u"
               "E2U+sip"
               "!^.*$!sip:alice@example.com!" .
             )
@  IN NAPTR  ( 100 10 "u"
               "E2U+sip:lr"
               "!^.*$!sip:p1.example.com;lr!" .
```

)

A SIP proxy dealing with a call to tel:+441154960496 can select either record. The first leads to

```
INVITE sip:alice@example.com SIP/2.0
```

being sent to the proxy responsible for example.com. If the sip:lr record is used, then

```
INVITE tel:+441154960496 SIP/2.0
Route: <sip:p1.example.com;lr>
```

is sent to p1.example.com.

5. Security & Privacy Considerations

The registration document of the "sip" enumservice ([RFC3764]) contains an extensive Security section.

The loose route subtype adds no new concerns, to the contrary: as the SIP URI contained in such a records does not contain a (potentially revealing) AoR, but only a hostname and port, it is less likely to leak personal information.

On the other hand, the hostnames contained in these records may expose information on the internal network topology.

6. IANA Considerations

This memo requests IANA to add a new "lr" Enumservice subtype to the 'Enumservice Registrations' registry entry for "sip", according to the definitions in this document and [I-D.ietf-enum-enumservices-guide].

The required template is contained in Section 3.

7. DNS Considerations

This is a straight forward ENUM service-type.

8. References

8.1. Normative References

[RFC3761] Faltstrom, P. and M. Mealling, "The E.164 to Uniform Resource Identifiers (URI) Dynamic Delegation Discovery System (DDDS) Application (ENUM)", RFC 3761, April 2004.

[RFC3986] Berners-Lee, T., Fielding, R., and L. Masinter, "Uniform Resource Identifier (URI): Generic Syntax", STD 66, RFC 3986, January 2005.

[RFC3764] Peterson, J., "enumservice registration for Session Initiation Protocol (SIP) Addresses-of-Record", RFC 3764, April 2004.

[I-D.ietf-enum-enumservices-guide] Hoeneisen, B., Mayrhofer, A., and J. Livingood, "IANA Registration of Enumservices: Guide, Template and IANA Considerations", draft-ietf-enum-enumservices-guide-08 (work in progress), March 2008.

8.2. Informative References

[RFC1035] Mockapetris, P., "Domain names - implementation and specification", STD 13, RFC 1035, November 1987.

[refs.E164] ITU-T, "The international public telecommunication numbering plan", Recommendation E.164 (02/05), Feb 2005.

[I-D.rosenberg-sip-ua-loose-route] Rosenberg, J., "Applying Loose Routing to Session Initiation Protocol (SIP) User Agents (UA)", draft-rosenberg-sip-ua-loose-route-02 (work in progress), January 2008.

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