       A Telephone Number Mapping (ENUM) Service Registration for
                     Instant Messaging (IM) Services

Status of This Memo

   This document specifies an Internet standards track protocol for the
   Internet community, and requests discussion and suggestions for
   improvements. Please refer to the current edition of the "Internet
   Official Protocol Standards" (STD 1) for the standardization state
   and status of this protocol. Distribution of this memo is unlimited.

Abstract

   This document registers a Telephone Number Mapping (ENUM) service for
   Instant Messaging (IM). Specifically, this document focuses on
   provisioning 'im:' URIs (Uniform Resource Identifiers) in ENUM.

1. Introduction

   ENUM (E.164 Number Mapping, RFC 3761 [1]) is a system that uses DNS
   (Domain Name Service, RFC 1034 [2]) to translate telephone numbers,
   such as '+12025550100', into URIs (Uniform Resource Identifiers, RFC
   3986 [3]), such as 'im:user@example.com'. ENUM exists primarily to
   facilitate the interconnection of systems that rely on telephone
   numbers with those that use URIs to identify resources.

   Instant Messaging (IM) is a service defined in RFC 2778 [6] that
   allows users to send and receive typically short, often textual
   messages in near real-time. The IETF has defined a generic URI used
   to identify an IM service for a particular resource: the 'im:' URI
   scheme (defined in RFC 3861 [4]). RFC 3861 [4] also defines rules
   for discovering service running specific protocols, such as SIP (the
   Session Initiation Protocol, RFC 3261 [8]) and XMPP (the eXtensible
   Messaging and Presence Protocol, RFC 3921 [9]) from a specific 'im:'
   URI.

   RFC 3953 [10] already defines an enumservice for presence services,
   which returns 'pres:' URIs (also defined in RFC 3861 [4]). This
   document registers an enumservice for advertising IM information
   associated with an E.164 number.

2. ENUM Service Registration - im

   As defined in RFC 3761 [1], the following is a template covering
   information needed for the registration of the enumservice specified
   in this document:

   Enumservice Name:
      "im"
   Enumservice Type:
      "im"
   Enumservice Subtypes:
      N/A
   URI scheme(s):
      "im:"
   Functional Specification:
      This Enumservice indicates that the resource identified is an
      'im:' URI. The 'im:' URI scheme does not identify any particular
      protocol that will be used to handle instant messaging receipt or
      delivery, rather the mechanism in RFC 3861 [4] is used to discover
      whether an IM protocol supported by the party querying ENUM is
      also supported by the target resource.
   Security considerations:
      See section 3.
   Intended usage:
      COMMON
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3. Security Considerations

   The Domain Name System (DNS) does not make policy decisions about
   which records it provides to a DNS resolver. All DNS records must be
   assumed to be available to all inquirers at all times. The
   information provided within an ENUM record set must therefore be
   considered open to the public -- which is a cause for some privacy
   considerations.

   Revealing an 'im:' URI by itself is unlikely to introduce many
   privacy concerns, although, depending on the structure of the URI, it
   might reveal the full name or employer of the target. The use of
   anonymous URIs mitigates this risk.

   As ENUM uses DNS, which in its current form is an insecure protocol,
   there is no mechanism for ensuring that the answer returned to a
   query is authentic. An analysis of threats specific to the
   dependence of ENUM on the DNS is provided in RFC 3761, and a thorough
   analysis of threats to the DNS itself is covered in RFC 3833 [11].
   Many of these problems are prevented when the resolver verifies the

authenticity of answers to its ENUM queries via DNSSEC [5] in zones
where it is available.

More serious security concerns are associated with potential attacks
against an underlying Instant Messaging system (for example, message
forgery and tampering). For this reason, IM protocols have a number
of security requirements (detailed in RFC 2779 [7]) that call for
authentication, integrity and confidentiality properties, and similar
measures to prevent such attacks. Any instant messaging protocol
used in conjunction with the 'im:' URI scheme is required to meet
these requirements.

Unlike a traditional telephone number, the resource identified by an
'im:' URI may require that callers provide cryptographic credentials
for authentication and authorization before instant messages are
exchanged. In concert with instant messaging protocols, ENUM can
actually provide far greater protection from unwanted callers than
does the existing PSTN, despite the public availability of ENUM
records.

4. IANA Considerations

   This document requests registration of the "im" Enumservice according
   to the definitions in this document and RFC 3761 [1].

5. References

5.1. Normative References

   [1]   Faltstrom, P. and M. Mealling, "The E.164 to Uniform Resource
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           Application (ENUM)", RFC 3761, April 2004.

   [2]   Mockapetris, P., "Domain names - concepts and facilities", STD
           13, RFC 1034, November 1987.

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

   [4]   Peterson, J., "Address Resolution for Instant Messaging and
           Presence", RFC 3861, August 2004.

   [5]   Arends, R., Austein, R., Larson, M., Massey, D., and S. Rose,
           "Protocol Modifications for the DNS Security Extensions", RFC
           4035, March 2005.

5.2. Informative References

   [6]   Day, M., Rosenberg, J., and H. Sugano, "A Model for Presence
          and Instant Messaging", RFC 2778, February 2000.

   [7]   Day, M., Aggarwal, S., Mohr, G., and J. Vincent, "Instant
          Messaging / Presence Protocol Requirements", RFC 2779, February
          2000.

   [8]   Rosenberg, J., Schulzrinne, H., Camarillo, G., Johnston, A.,
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          Session Initiation Protocol", RFC 3261, June 2002.

   [9]   Saint-Andre, P., Ed., "Extensible Messaging and Presence
          Protocol (XMPP): Instant Messaging and Presence", RFC 3921,
          October 2004.

   [10]   Peterson, J., "Telephone Number Mapping (ENUM) Service
          Registration for Presence Services", RFC 3953, January 2005.

   [11]   Atkins, D. and R. Austein, "Threat Analysis of the Domain Name
          System (DNS)", RFC 3833, August 2004.

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