

Telephone Number Mapping (ENUM) Service  
Registration for Presence 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.

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Abstract

This document registers a Telephone Number Mapping (ENUM) service for presence. Specifically, this document focuses on provisioning presence URIs in ENUM.

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## 1. Introduction

ENUM (E.164 Number Mapping, RFC 3761 [1]) is a system that uses DNS (Domain Name Service, RFC 1034 [8]) to translate telephone numbers, such as +12025332600, into URIs (Uniform Resource Identifiers, RFC 2396 [9]), such as pres:user@host.com. ENUM exists primarily to facilitate the interconnection of systems that rely on telephone numbers with those that use URIs to identify resources.

Presence is a service defined in RFC 2778 [2] that allows users of a communications service to monitor one another's availability and disposition in order to make decisions about communicating. Presence information is highly dynamic and generally characterizes whether a user is online or offline, busy or idle, away from communications devices or nearby, and the like.

The IETF has defined a generic URI used to identify a presence service for a particular resource: the 'pres' URI scheme (defined in CPP [4]). This document describes an enumservice for advertising presence information associated with an E.164 number.

## 2. ENUM Service Registration

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

Service name: "E2U+pres"

URI scheme(s): "pres:"

Functional Specification: See section 4.

Security considerations: See section 6.

Intended usage: COMMON

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Any other information that the author deems interesting: See section 3.

## 3. Presence for E.164 Numbers

This document specifies an enumservice field that allows presence information to be provided for an E.164 number. This may include presence states associated with telephones, or presence of non-telephony communications services advertised by ENUM.

Endpoints that participate in a presence architecture are known (following the framework in RFC 2778 [2]) as watchers and presentities. Watchers subscribe to the presence of presentities and are notified when the presence of a presentity changes. Watchers generally monitor the presence of a group of presentities with whom they have an ongoing association. As an example, consider how this might apply to a telephony service. Most cellular telephones today have an address book-like feature, a small database of names and telephone numbers. Such a telephone might act as a watcher, subscribing to the presence of some or all of the telephone numbers in its address book. The display of the telephone might then show its user, when a presence-enabled telephone number is selected, the availability of the destination. With this information, the user might change their calling habits to correspond better to the availability of his or her associates.

The presence information that is shared varies by communications service. The IETF has defined a Presence Information Data Format (or PIDF [6]) for describing the presence data associated with a presentity. The baseline PIDF specification declares only two presence states: OPEN and CLOSED (these terms are defined in RFC 2778 [2]); the former suggests that the destination resource is able to accept communication requests, the latter that it is not. These two states provide useful but rudimentary insight into the communications status of a presentity. For that reason, PIDF is an extensible format, and new sorts of statuses can be defined for specific communications services. For example, a telephony-based presence service might define a status corresponding to 'busy'. Extending PIDF for telephony services is, however, outside the scope of this document.

#### 4. The 'E2U+pres' Enumservice

Traditionally, the services field of an NAPTR record (as defined in [10]) contains a string composed of two subfields: a 'protocol' subfield and a 'resolution service' subfield. ENUM in particular defines an 'E2U' (E.164 to URI) resolution service. This document defines an 'E2U+pres' enumservice for presence.

The scheme of the URI that will appear in the regexp field of an NAPTR record using the 'E2U+pres' enumservice SHOULD be the 'pres' URI scheme. Other URI schemes appropriate to presence services MAY be used; however, the use of the 'pres' URI scheme ensures a greater level of compatibility than would the use of any URI specific to a particular presence protocol. The purpose of a pres URI is to provide a generic way to locate a presence service. Techniques for dereferencing the pres URI to locate a presence service are given in [5].

The 'pres' URI scheme does not identify any particular protocol that will be used to handle presence operations (such as subscriptions and notifications). Rather, the mechanism in [5] details a way to discover whether the presence protocol(s) supported by the watcher is/are also supported by the presentity. SIP [7] is one protocol that can be used to convey presence information and manage subscriptions/notifications.

## 5. Example of E2U+pres enumservice

The following is an example of the use of the enumservice registered by this document in an NAPTR resource record.

```
$ORIGIN 3.8.0.0.6.9.2.3.6.1.4.4.e164.arpa.  
IN NAPTR 100 10 "u" "E2U+pres" "!^.*$!pres:jon.peterson@example.net!"
```

## 6. Security Considerations

DNS does not make policy decisions about the records it shares with an inquirer. 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 a pres URI in and of 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. More serious privacy concerns are associated with the unauthorized distribution of presence information. For this reason, presence protocols have a number of security requirements (detailed in RFC 2779 [3]) that call for authentication of watchers, integrity and confidentiality properties, and similar measures to prevent abuse of presence information. Any presence protocol used in conjunction with the 'pres' URI scheme is required to meet these requirements.

Unlike a traditional telephone number, the resource identified by a pres URI may require that callers provide cryptographic credentials for authentication and authorization before presence information is returned. In concert with presence protocols, ENUM can actually provide far greater protection from unwanted callers than does the existing PSTN, despite the public availability of ENUM records.

## 7. IANA Considerations

This document registers the 'E2U+pres' enumservice under the enumservice registry described in the IANA considerations in RFC 3761. Details of the registration are given in section 2.

## 8. References

### 8.1. Normative References

- [1] Faltstrom, P. and M. Mealling, "The E.164 to Uniform Resource Identifiers (URI) Dynamic Delegation Discovery System (DDDS) Application", RFC 3761, April 2004.
- [2] Day, M., Rosenberg, J., and H. Sugano, "A Model for Presence and Instant Messaging", RFC 2778, February 2000.
- [3] Day, M., Aggarwal, S., Mohr, G., and J. Vincent, "Instant Messaging / Presence Protocol Requirements", RFC 2779, February 2000.
- [4] Peterson, J., "Common Profile for Presence (CPP)", RFC 3859, August 2004.
- [5] Peterson, J., "Address Resolution for Instant Messaging and Presence", RFC 3861, August 2004.

### 8.2. Informative References

- [6] Sugano, H., Fujimoto, S., Klyne, G., Bateman, A., Carr, W., and J. Peterson, "Presence Information Data Format (PIDF)", RFC 3863, August 2004.
- [7] Rosenberg, J., Schulzrinne, H., Camarillo, G., Johnston, A., Peterson, J., Sparks, R., Handley, M., and E. Schooler, "SIP: Session Initiation Protocol", RFC 3261, June 2002.
- [8] Mockapetris, P., "Domain Names - Concepts and Facilities", STD 13, RFC 1034, November 1987.
- [9] Berners-Lee, T., Fielding, R., and L. Masinter, "Uniform Resource Identifiers (URI): Generic Syntax", RFC 2396, August 1998.
- [10] Mealling, M., "Dynamic Delegation Discovery System (DDDS) Part Three: The Domain Name System (DNS) Database", RFC 3403, October 2002.

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