Network Working Group
Request for Comments: 4969
Category: Standards Track

A. Mayrhofer
enum.at

August 2007

IANA Registration for vCard Enumservice

Status of This Memo

Copyright Notice

Abstract

This memo registers the Enumservice "vCard" using the URI schemes "http" and "https". This Enumservice is to be used to refer from an ENUM domain name to a vCard instance describing the user of the respective E.164 number.

Information gathered from those vCards could be used before, during, or after inbound or outbound communication takes place. For example, a callee might be presented with the name and association of the caller before picking up the call.

Table of Contents

1. Introduction

E.164 Number Mapping (ENUM) [1] uses the Domain Name System (DNS) [2] to refer from E.164 numbers [3] to Uniform Resource Identifiers (URIs) [6]. The registration process for Enumservices is described in Section 3 of RFC 3761.

"vCard" [4] is a transport-independent data format for the exchange of information about an individual. For the purpose of this document, the term "vCard" refers to a specific instance of this data format -- an "electronic business card". vCards are exchanged via several protocols; most commonly, they are distributed as electronic mail attachments or published on web servers. Most popular personal information manager applications are capable of reading and writing vCards.

The Enumservice specified in this document deals with the relation between an E.164 number and vCards. An ENUM record using this Enumservice identifies a resource from where a vCard corresponding to the respective E.164 number could be fetched.

Clients could use those resources to, e.g., automatically update local address books (a Voice over IP phone could try to fetch vCards for all outbound and inbound calls taking place on that phone and display them together with the call journal). In a more integrated scenario, information gathered from those vCards could even be automatically incorporated into the personal information manager application of the respective user.

2. Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119 [5].

3. Enumservice Registration - vCard

Enumservice Name: "vCard"

Enumservice Type: "vcard"

Enumservice Subtype: n/a

URI Schemes: "http", "https"

Functional Specification:

This Enumservice indicates that the resource identified is a plain vCard, according to RFC 2426, which may be accessed using HTTP/HTTPS [7].

Clients fetching the vCard from the resource indicated should expect access to be restricted. Additionally, the comprehension of the data provided may vary depending on the client's identity.

Security Considerations: see Section 5

Intended Usage: COMMON

Author: Alexander Mayrhofer <alexander.mayrhofer@enum.at>

4. Example

An example ENUM entry referencing to a vCard could look like:

```
$ORIGIN 6.4.9.0.6.4.9.7.0.2.4.4.e164.arpa.
@  IN NAPTR 100 10 "u" "E2U+vcard" \
"!^.*$!http://example.net/vcard.vcf!" .
```

5. Security and Privacy Considerations

As with any Enumservice, the security considerations of ENUM itself (Section 6 of RFC 3761) apply.

5.1. The ENUM Record Itself

Since ENUM uses DNS -- a publicly available database -- any information contained in records provisioned in ENUM domains must be considered public as well. Even after revoking the DNS entry and removing the referred resource, copies of the information could still be available.

Information published in ENUM records could reveal associations between E.164 numbers and their owners - especially if URIs contain personal identifiers or domain names for which ownership information can be obtained easily. For example, the following URI makes it easy to guess the owner of an E.164 number, as well as his location and association, by just examining the result from the ENUM lookup:

http://sandiego.company.example.com/joe-william-user.vcf

However, it is important to note that the ENUM record itself does not need to contain any personal information. It just points to a location where access to personal information could be granted. For example, the following URI only reveals the service provider hosting the vCard (who probably even provides anonymous hosting):

http://anonhoster.example.org/file_adfa001.vcf

ENUM records pointing to third-party resources can easily be provisioned on purpose by the ENUM domain owner - so any assumption about the association between a number and an entity could therefore be completely bogus unless some kind of identity verification is in place. This verification is out of scope for this memo.

5.2. The Resource Identified

In most cases, vCards provide information about individuals. Linking telephone numbers to such Personally Identifiable Information (PII) is a very sensitive topic, because it provides a "reverse lookup" from the number to its owner. Publication of such PII is covered by data-protection law in many legislations. In most cases, the explicit consent of the affected individual is required.

Users MUST therefore carefully consider information they provide in the resource identified by the ENUM record as well as in the record itself. Considerations SHOULD include serving information only to entities of the user's choice and/or limiting the comprehension of the information provided based on the identity of the requestor.

The use of HTTP in this Enumservice allows using built-in authentication, authorization, and session control mechanisms to be used to maintain access controls on vCards. Most notable, Digest Authentication [8] could be used to challenge requestors, and even synthesize vCards based on the client's identity (or refuse access entirely). This could especially be useful in private ENUM deployments (like within enterprises), where clients would more likely have a valid credential to access the indicated resource.

Even public deployments could synthesize vCards based on the identity of the client. Social network sites, for example, could (based on HTTP session data like cookies [9]) provide more comprehensive vCards to their members than to anonymous clients.

If access restrictions on the vCard resource are deployed, standard HTTP authentication, authorization, and state management mechanisms (as described in RFCs 2617 and 2695) MUST be used to enforce those restrictions. HTTPS SHOULD be preferred if the deployed mechanisms are prone to eavesdropping and replay attacks.

ENUM deployments using this Enumservice together with DNS Security Extensions (DNSSEC) [10] should consider using Minimally Covering NSEC Records [11] to prevent zone walking, as the PII data contained in vCards constitutes a rich target for such attempts.

6. IANA Considerations

This memo requests registration of the "vCard" Enumservice according to the template in Section 3 of this document and the definitions in RFC 3761 [1].

7. Acknowledgements

The author wishes to thank David Lindner for his contributions during the early stages of this document. In addition, Klaus Nieminen, Jon Peterson, Ondrej Sury, and Ted Hardie provided very helpful suggestions.

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 (ENUM)", RFC 3761, April 2004.

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

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

[4] Dawson, F. and T. Howes, "vCard MIME Directory Profile", RFC 2426, September 1998.

[5] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

8.2. Informative References

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

[7] Fielding, R., Gettys, J., Mogul, J., Frystyk, H., Masinter, L., Leach, P., and T. Berners-Lee, "Hypertext Transfer Protocol -- HTTP/1.1", RFC 2616, June 1999.

[8] Franks, J., Hallam-Baker, P., Hostetler, J., Lawrence, S., Leach, P., Luotonen, A., and L. Stewart, "HTTP Authentication: Basic and Digest Access Authentication", RFC 2617, June 1999.

[9] Kristol, D. and L. Montulli, "HTTP State Management Mechanism", RFC 2965, October 2000.

[10] Arends, R., Austein, R., Larson, M., Massey, D., and S. Rose, "DNS Security Introduction and Requirements", RFC 4033, March 2005.

[11] Weiler, S. and J. Ihren, "Minimally Covering NSEC Records and DNSSEC On-line Signing", RFC 4470, April 2006.

Author's Address

Alexander Mayrhofer
enum.at GmbH
Karlsplatz 1/2/9
Wien A-1010
Austria

Phone: +43 1 5056416 34
EMail: alexander.mayrhofer@enum.at
URI: http://www.enum.at/

Full Copyright Statement

Intellectual Property

Acknowledgement

Funding for the RFC Editor function is currently provided by the Internet Society.