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IANA Registration for Enumservices email, fax, mms, ems, and sms

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Abstract

This document registers the Enumservices "email", "fax", "sms", "ems", and "mms" using the URI schemes 'tel:' and 'mailto:' as per the IANA registration process defined in the ENUM specification RFC 3761.

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1. Introduction

ENUM (E.164 Number Mapping, RFC 3761 [2]) is a system that transforms E.164 numbers [3] into domain names and then uses DNS (Domain Name Service, RFC 1034 [4]) services like delegation through NS records and NAPTR records to look up what services are available for a specific domain name.

This document registers Enumservices according to the guidelines given in RFC 3761 to be used for provisioning in the services field of a NAPTR [5] resource record to indicate what class of functionality a given endpoint offers. The registration is defined within the DDDS (Dynamic Delegation Discovery System [6][7][5][8][9]) hierarchy, for use with the "E2U" DDDS Application defined in RFC 3761.

The following Enumservices are registered with this document: "email", "fax", "sms", "ems", and "mms". These share a common feature in that they each indicate that the functionality of the given endpoints and the associated resources are capable of receiving discrete messages, albeit of different types.

According to RFC 3761, the Enumservice registered must be able to function as a selection mechanism when choosing one NAPTR resource record from another. That means that the registration MUST specify

what is expected when using that very NAPTR record, and the Uniform Resource Identifier (URI) scheme that is the outcome of the use of it.

Therefore, an Enumservice acts as a hint, indicating the kind of service with which the URI constructed using the regexp field is associated. There can be more than one Enumservice included within a single NAPTR; this indicates that there is more than one service that can be achieved using the associated URI scheme.

The common thread with this set of definitions is that they reflect the kind of service that the end-user will hope to achieve with the communication using the associated URI.

The services specified here are intended not to specify the protocol or even method of connection that must be used to achieve each service. Instead they define the kind of interactive behaviour that an end-user will expect, leaving the end system to decide (based on policies outside the remit of this specification) how to execute the service.

Since the same URI scheme may be used for different services (e.g., 'tel:'), and the same kind of service may use different URI schemes (e.g., for VoIP 'h323:' and 'tel:' may be used), it is necessary in some cases to specify the service and the URI scheme used.

The service parameters defined in RFC 3761 allow, therefore, a "type" and a "subtype" to be specified. Within this set of specifications, the convention is assumed that the "type" (being the more generic term) defines the service and the "subtype" defines the URI scheme.

Even where currently only one URI scheme is associated with a given service, it should be considered that an additional URI scheme to be used with this service may be added later. Thus, the subtype is needed to identify the specific Enumservice intended.

In this document, there are two URI schemes that are used within the various services. These are 'tel:', as specified in RFC 3966 [10] and 'mailto:', as specified in RFC 2368 [11].

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 BCP 14, RFC 2119 [1].

3. Email Service Registration

Enumservice Name: "email"

Enumservice Type: "email"

Enumservice Subtypes: "mailto"

URI Scheme: 'mailto:'

Functional Specification:

This Enumservice indicates that the remote resource can be addressed by the associated URI scheme in order to send an email.

Security Considerations:

See Section 6.

Intended Usage: COMMON

Authors:

Rudolf Brandner, Lawrence Conroy, Richard Stastny (for author contact detail, see Authors' Addresses section)

Any other information the author deems interesting:

None

4. Fax Service Registration

Enumservice Name: "fax"

Enumservice Type: "fax"

Enumservice Subtype: "tel"

URI Scheme: 'tel:'

Functional Specification:

This Enumservice indicates that the resource identified by the associated URI scheme is capable of being contacted to provide a communication session during which facsimile documents can be sent.

Clients selecting this NAPTR will have support for generating and sending facsimile documents to the recipient using the Public Switched Telephone Network (PSTN) session and transfer protocols specified in [12] and [13]. In short, they will have a fax program with a local or shared PSTN access over which they can send faxes.

Security Considerations:

See Section 6.

Intended Usage: COMMON

Authors:

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Any other information the author deems interesting:

None

5. MMS, EMS, SMS Service

5.1. Introduction

An ENUM NAPTR indicates ability on the part of the Subscriber to receive specified communication service (or services) provided via the contact address (shown in the generated URI).

In the case of MMS, EMS, and SMS services, the capability of these services is a nested superset; thus, a service supporting MMS can support also delivery of EMS or SMS message content to a recipient that is receiving a Multimedia Message, whilst a service supporting EMS can also deliver SMS message content to a recipient that can accept receipt of EMS Messages.

Thus, even if a client wants only to generate and send content that could be carried in an SMS message, the client MAY choose to consider also NAPTRs holding EMS and/or MMS Enumservices, as these indicate that the destination can accept EMS and/or MMS messages. These services will be able to deliver SMS content to the recipient address.

Conversely, a client capable of sending MMS messages may choose to consider also NAPTRs indicating support for EMS or SMS messages (assuming that the network to which it is connected provides these services as well, or is capable of providing a gateway to systems

that do provide these services). In taking this choice, it would have to "downgrade" its User Interface to allow only generation of content that conforms to SMS or EMS standards.

These behaviours on the part of the client are purely optional and are NOT the subject of any protocol standardisation.

5.2. SMS Service Registrations

5.2.1. SMS Service Registration with tel: URI

Enumservice Name: "sms"

Enumservice Type: "sms"

Enumservice Subtypes: "tel"

URI Scheme: 'tel:'

Functional Specification:

This Enumservice indicates that the resource identified by the associated URI scheme is capable of receiving a message using the Short Message Service (SMS) [14].

Security Considerations:

There are no specific security issues with this Enumservice. However, the general considerations of Section 6 apply.

Intended Usage: COMMON

Authors:

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Any other information the author deems interesting:

None

5.2.2. SMS Service Registration with mailto: URI

Enumservice Name: "sms"

Enumservice Type: "sms"

Enumservice Subtypes: "mailto"

URI Scheme: 'mailto:'

Functional Specification:

This Enumservice indicates that the resource identified by the associated URI scheme is capable of receiving a message using an email protocol.

SMS content is sent over SMTP using the format specified by TS 23.140 [15] Section 8.4.4 and TS 26.140 [16] Section 4, as an MMS message. Within such a message, SMS content is carried as either a text or application/octet-stream MIME sub-part (see TS 26.140 [16] Section 4.1).

Security Considerations:

There are no specific security issues with this Enumservice. However, the general considerations of Section 6 apply.

Intended Usage: COMMON

Authors:

Rudolf Brandner, Lawrence Conroy, Richard Stastny (for author contact detail, see Authors' Addresses section)

Any other information the author deems interesting:

None

5.3. EMS Service Registrations

5.3.1. EMS Service Registration with tel: URI

Enumservice Name: "ems"

Enumservice Type: "ems"

Enumservice Subtype: "tel"

URI Scheme: 'tel:'

Functional Specification:

This Enumservice indicates that the resource identified by the associated URI scheme is capable of receiving a message using the Enhanced Message Service (EMS) [14].

Security Considerations:

There are no specific security issues with this Enumservice. However, the general considerations of Section 6 apply.

Intended Usage: COMMON

Authors:

Rudolf Brandner, Lawrence Conroy, Richard Stastny (for author contact detail, see Authors' Addresses section)

Any other information the author deems interesting:

Note that an indication of EMS can be taken as implying that the recipient is capable of receiving SMS messages at this address as well.

5.3.2. EMS Service Registration with mailto: URI

Enumservice Name: "ems"

Enumservice Type: "ems"

Enumservice Subtypes: "mailto"

URI Scheme: 'mailto:'

Functional Specification:

This Enumservice indicates that the resource identified by the associated URI scheme is capable of receiving a message using an email protocol.

EMS content is sent over SMTP using the format specified by TS 23.140 [15] Section 8.4.4 and TS 26.140 [16] Section 4, as an MMS message. Within such a message, EMS content is carried as either a text or application/octet-stream MIME sub-part (see TS 26.140 [16] section 4.1).

Security Considerations:

There are no specific security issues with this Enumservice. However, the general considerations of Section 6 apply.

Intended Usage: COMMON

Authors:

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Any other information the author deems interesting:

None

5.4. MMS Service Registrations

5.4.1. MMS Service Registration with tel: URI

Enumservice Name: "mms"

Enumservice Type: "mms"

Enumservice Subtype: "tel"

URI Scheme: 'tel:'

Functional Specification:

This Enumservice indicates that the resource identified by the associated URI scheme is capable of receiving a message using the Multimedia Messaging Service (MMS) [15].

Security Considerations:

There are no specific security issues with this Enumservice. However, the general considerations of Section 6 apply.

Intended Usage: COMMON

Authors:

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Any other information the author deems interesting:

Note that MMS can be used as an alternative to deliver an SMS RP-DATA RPDU if, for example, the SMS bearer is not supported. If an entry includes this Enumservice, then in effect this can be taken as implying that the recipient is capable of receiving EMS or SMS messages at this address. Such choices on the end system design do have two small caveats; whilst in practice all terminals

supporting MMS today support SMS as well, it might not necessarily be the case in the future, and there may be tariff differences in using the MMS rather than using the SMS or EMS.

5.4.2. MMS Service Registration with mailto: URI

Enumservice Name: "mms"

Enumservice Type: "mms"

Enumservice Subtypes: "mailto"

URI Scheme: 'mailto:'

Functional Specification:

This Enumservice indicates that the resource identified by the associated URI scheme is capable of receiving a message using an email protocol.

MMS messages are sent over SMTP using the format specified by TS 23.140 [15] Section 8.4.4 and TS 26.140 [16] Section 4.

Within and between MMS Environments (MMSE, network infrastructures that support the MultiMedia Service), other pieces of state data (for example, charging-significant information) are exchanged between MMS Relay Servers. Thus, although these servers use SMTP as the "bearer" for their application exchanges, they map their internal state to specialised headers carried in the SMTP message exchanges. The headers used in such MMSE are described in detail in [17].

Security Considerations:

There are no specific security issues with this Enumservice. However, the general considerations of Section 6 apply.

Intended Usage: COMMON

Authors:

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Any other information the author deems interesting:

The MMS Architecture describes an interface between the MMSE and "legacy messaging systems" (labelled as MM3) that accepts

"standard" SMTP messages. Thus, although the MMS Relay Server that supports this interface appears as a standard SMTP server from the perspective of an Internet-based mail server, it acts as a gateway and translator, adding the internal state data that is used within and between the MMS Environments. This mechanism is described in [17], which also includes references to the specifications agreed by those bodies responsible for the design of the MMS.

6. Security Considerations

DNS, as used by ENUM, is a global, distributed database. Thus, any information stored there is visible to anyone anonymously. Whilst this is not qualitatively different from publication in a Telephone Directory, it does open data subjects to having "their" information collected automatically without any indication that this has been done or by whom.

Such data harvesting by third parties is often used to generate lists of targets for unrequested information; in short, they are used to address "spam". Anyone who uses a Web-archived mailing list is aware that the volume of "spam" email they are sent increases when they post to the mailing list. Publication of a telephone number in ENUM is no different, and may be used to send "junk faxes" or "junk SMS", for example.

Many mailing list users have more than one email address and use "sacrificial" email accounts when posting to such lists to help filter out unrequested emails sent to them. This is not so easy with published telephone numbers; the PSTN E.164 number assignment process is much more involved, and usually a single E.164 number (or a fixed range of numbers) is associated with each PSTN access. Thus, providing a "sacrificial" phone number in any publication is not possible.

Due to the implications of publishing data on a globally accessible database, as a principle, data subjects MUST give their explicit informed consent to data being published in ENUM.

In addition, they should be made aware that, due to storage of such data during harvesting by third parties, removal of the data from publication will not remove any copies that have been taken; in effect, any publication may be permanent.

However, regulations in many regions will require that data subjects can at any time request that the data is removed from publication and that their consent for its publication is explicitly confirmed at regular intervals.

When placing a fax call via the PSTN or a sending a message via the Public Land Mobile Network, the sender may be charged for this action. In both kinds of network, calling or messaging to some numbers is more expensive than sending to others; both networks have "premium rate" services that can charge considerably more than a "normal" call or message destination. As such, it is important that end-users be asked to confirm sending the message and that the destination number be presented to them. It is the originating user's choice on whether or not to send a message to this destination number, but end-users SHOULD be shown the destination number so that they can make this decision.

Although a fax number, like other E.164 numbers, doesn't appear to reveal as much identity information about a user as a name in the format user@host (e.g., an email or SIP address), the information is still publicly available; thus, there is still the risk of unwanted communication.

An analysis of threats specific to the dependence of ENUM on the DNS, and the applicability of DNSSEC [18] to these, is provided in RFC 3761 [2]. A thorough analysis of threats to the DNS itself is covered in RFC 3833 [19].

An email address is a canonical address by which a user is known. Placing this address in ENUM is comparable to placing a SIP or H.323 address in the DNS.

DNS does not make any policy decisions about the records that 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 NAPTR resource record must, therefore, be considered to be open to the public, which is a cause for some privacy considerations.

Therefore, ENUM Subscribers should be made aware of this risk. Since it is within the responsibility of the ENUM Subscriber which data is entered in ENUM, it is within the ENUM Subscriber's control if he enters email addresses:

1. allowing inference of private data, e.g., his first and last name
2. at all

It should also be considered that it is the purpose of public communication identifiers to be publicly known. To reduce spam and other unwanted communication, other means should be made available, such as incoming message filtering.

Some Value Added Service Providers use receipt of a short message to a given special service telephone number as a trigger to start delivery of data messages to the calling number. By sending an SMS (or, in principle, an EMS or MMS) to one of these special service numbers, one is entering into a contract to pay for receipt of a set of messages containing information (e.g., news, sports results, "ring tones").

Thus, it is very important that the end terminal presents the destination number to which any message is to be sent using the "sms:tel", "ems:tel", or "mms:tel" Enumservices, to allow the end-user to cancel any message before it is sent to one of these numbers.

At present, these systems use the circuit switched network trusted calling line identifier to identify the destination for the subsequent charged information messages, and so it is believed that sending using the "sms:mailto", "ems:mailto", or "mms:mailto" Enumservices does not have this risk currently.

7. Acknowledgements

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