

Configuring ENUM dialing

How to Use ENUM Dialing with sipXecs

Introduction

The purpose of ENUM, IETF RFC 2916, is to facilitate the smooth convergence of global communications services between the Public Switched Telephone Network (PSTN) and the Internet by allowing telephone numbers to be used as a common addressing mechanism for both PSTN and Internet services.

The ENUM dialing system enables SIP calls to be made between organizations based on ordinary PSTN phone numbers (also called "[E.164 numbers](#)"). A set of records in DNS, informally referred to as "ENUM", provides a translation from a phone number to a SIP URI to reach that phone. The ENUM system is nowhere near fully implemented, but is in experimental use in a number of organizations.

Starting with sipXecs **release 3.7** includes an ENUM implementation that allows organizations and individuals to participate in ENUM trials and benefit from the resulting least-cost routing of calls over the Internet.

Public vs. Private ENUM

The original idea was to establish a global public ENUM system based on the "e164.arpa" domain. The "e164.arpa" implementation delegates control over ENUM services to 200+ national PSTN regulatory entities. Within this vision, every country is being given the power to define if, how and when ENUM services will be deployed within their given country-code under the "e164.arpa" domain.

[Austria](#) is cited most often as the country that was first to adopt this vision and implement a national registry. However, speed of implementation or even willingness to push this vision varies significantly from country to country. Afterall, one of the side effects of ENUM is the ability to route calls around the PSTN and over IP in a fully transparent way to the end-user, which is not in the interest of most national PTTs and carriers.

As an alternative, private ENUM can be implemented based on a different root domain. Many Internet Service Providers (ITSPs) and private Enterprises start implementing ENUM directories of their own. The most noteworthy is [e164.org](#), a not-for-profit ENUM registry that offers free ENUM registrations of phone numbers.

Configuring ENUM Dialing

Configuring ENUM dialing in sipX is simple as shown in the screenshot below. Essentially all you have to do is enter a root domain into the provided field, which enables ENUM routing in the sipX dialplan. The current implementation does not offer full integration of ENUM into the dialplan - however, [we are working on it](#). The current implementation requires the use of a prefix for ENUM calls.

SIP Registrar

Servers ► [toolbar-dev.ezuze.com](#) ► SIP Registrar [Show Advanced Settings](#)

ISN Dialing

ISN dialing

Enable ISN (ITAD Subscriber Number) dialing. ISN dialing allows routing of calls over the Internet and around the PSTN by providing support for domain-based "Internet-style" numbers (ITAD numbers). E.g. to reach the Free World Dialup (ITAD 262) echo test service at extension 613 you can dial 613*262 from the phone's dialpad without having to enter a full SIP URI. A free ITAD number can be obtained for your domain from [www.freenum.org](#). A list of already assigned ITAD numbers is also available there.

ENUM Dialing

ENUM unifies E.164 telephone numbering system with DNS. E.164 number entered by the user is translated into domain string, which is subsequently resolved through reverse DNS lookup. PBX will use access information retrieved from DNS to terminate the call. Free registrations of PSTN numbers are available from [e164.org](#).

Base domain
Domain name of the ENUM tree, for example 'e164.arpa' or 'e164.org'. If base domain is empty ENUM dialing is disabled.

Drop prefix
Prefix used to identify ENUM dialing pattern. It is dropped before constructing ENUM URI.

Add prefix
Prefix added to dialed number before creating enum URI

Call Pickup

Directed call pickup code (Default: *78)
Code to dial to pick up a ringing call on a specific phone. To pick up extension 123, dial this code followed by 123.

Call park retrieve code (Default: *4)
Code to dial to retrieve a parked call. Dial this code followed by a call park extension to pick up a parked call.

Find: Match case

Related Links

- [ENUM lookups](#)
- [Neustar's ENUM service](#)
- [e164.org free ENUM registry](#)

Troubleshooting

Looking up an existing NAPTR record in an ENUM registry

The **host** command can be used to resolve ENUM domains in a DNS registry as follows:

```
host -t NAPTR 7.7.7.7.0.0.9.5.1.6.e164.arpa
```

```
host -t NAPTR 1.2.4.0.3.2.2.3.6.9.1.e164.org
```

Where the first one looks up a number in the Australian official e164.arpa registry (country code 61), and the second one looks up a US number (country code 1) in the e164.org registry. The first one exists and the second one is a fictive number. If you are registered at e164.org take your phone number, reverse the order of the digits and puts dots in between.