



ENUM Implementation for Toll Free Non-Geographic Codes

ENUM Forum Document #: 6002_1_0

Source: ENUM Forum
<http://www.enumf.org>

Editors: Robert Schafer
robert.schafer@verizon.com
972-729-6125

Penn Pfautz
ppfautz@att.com
732-420-4962

Date: April 12, 2006

1. SCOPE OF THIS DOCUMENT

This document provides the specifications necessary to implement the components for ENUM for portable toll free non-geographic numbering resources within the North American Numbering Plan (NANP) countries.¹ The scope of this document will therefore be limited to the NPAs and NXXs assigned to toll free services (i.e., 800, 888, 877, and 866) that are available for assignment in the toll free portability database (SMS/800). At Present, only the United States and Canada support toll free portability and so only Canadian and US numbers are shown as assigned in SMS/800.

The ENUM Forum has published a document that specifies the domestic infrastructure requirements for ENUM; 6000_1_0. That specification document included the architecture for the Tier 1 and Tier 2 name servers, as well as detailed functional descriptions and message flow specifications for the various entities necessary to ENUM: Tier 1 providers, Tier 2 providers, ENUM Registrars, telephone & application service providers, and end users. This document will only provide those specifications that are unique to the implementation of ENUM for toll free resources. Therefore, all other specifications should be referenced to 6000_1_0.

Portable toll free number assignments are managed by SMS/800 Responsible Organizations (Resp Orgs) via the SMS/800 Database; Resp Orgs act only at the direction of their customers, the Toll Free Service Subscribers of record. Resp Orgs operate according to the Alliance for Telecommunications Industry Solutions Ordering and Billing forum (ATIS OBF) Industry Guidelines for Toll Free Number Administration, which have been developed with a keen focus on preserving the integrity of the rights of Toll Free Service Subscribers. As such, Resp Orgs are critical to implementing ENUM for toll free services.

Authentication and Authorization procedures accomplished during the Registration process depend upon the Resp Orgs' cooperation in order to successfully register toll free numbers in ENUM, including identifying the Toll Free Service Subscriber, and resolving disputes regarding ENUM registrations.

2. INTRODUCTION

The list of countries in the NANP includes:

¹ Toll free numbers can be either portable or non-portable. Portable numbers are routed based on a query to a Service Control Point that identifies the serving carrier. Non-portable numbers are routed based on the toll-free NPA-NXX. Non-portable NXX assignments are discussed in Section 2 of this document.

- Anguilla
- Antigua & Barbuda
- Bahamas
- Barbados
- Bermuda
- British Virgin Islands
- Canada
- Cayman Islands
- Dominica
- Dominican Republic
- Grenada
- Jamaica
- Montserrat
- St. Kitts & Nevis
- St. Lucia
- St. Vincent & the Grenadines
- Trinidad & Tobago
- Turks & Caicos Islands
- the United States (including Puerto Rico, the U.S. Virgin Islands, Guam and the Commonwealth of the Northern Mariana Islands)

This use of the toll free resources can be via the toll free portability database (SMS/800) or by means of dedicated NXX codes. A partial list of NXX assignments, which are not in the toll free database, is shown in Table 1²:

TF NPA	TF NXX	Company Assignment	Country
800	271	Textel	Trinidad
800	389	Batelco	Bahamas
800	415	All American Cables	Dominican Republic
800	534	Bartelco	Barbados
800	623	Bermuda Tel Co	Bermuda
800	703		For Future Assignment
800	740	STSJ Telephone Co	Virgin Islands (in Non-US areas)
800	744	Cable & Wireless	
800	751	Codetel	Dominican Republic
800	904		For Future Assignment
800	907	Tricom	Dominican Republic

Table 1 - NXX assignments not in the toll free database

In addition, a number of additional toll free NXX codes are currently reserved or not in use. The entire list is presented below:

- 800-NXX's:
 - All 0XX and 1XX Codes (000-199)

² Note: Data was obtained from Telcordia's Routing Administration Group

- 202, 212, 271, 302, 312, 389, 402, 412, 415, 502, 512, 534, 602, 612, 623, 702, 703, 712, 740, 744, 751, 802, 812, 855, 902, 904, 907, 911, 912
- 866-NXX's:
 - All 0XX and 1XX Codes (000-199) plus 555, 911
- 877-NXX's:
 - All 0XX and 1XX Codes (000-199) plus 555, 911
- 888-NXX's:
 - All 0XX and 1XX Codes (000-199) plus 555, 911

Throughout this document the term toll free resources will include only those resources available for assignment within the portability database and will therefore exclude any toll free NPA NXXs assigned to providers or reserved.

To implement ENUM for these toll free resources, substantial Domain Name System (DNS)-based infrastructure must be put into place within the NANP countries. A Registry(ies) needs to be established to contain DNS records for the domain names based on participating toll free telephone numbers (TNs). Other name servers also need to be established to hold the ENUM application information in Naming Authority Pointer (NAPTR) records for each participating number. A provisioning process must be established for subscribers who wish to opt-in to ENUM to populate all the necessary DNS records through the use of ENUM Registrars. The following sections in this document, plus appropriate sections of 6000_1_0 provide specifications necessary to implement the toll free components for ENUM. It should provide sufficient information to allow a contracting entity to put an implementation out for bid to business organizations in the industry. As such, it describes, among other things, the reference architecture, the operational and administrative aspects of the Tier 1 Registry(ies), and the provisioning, Authentication and Authorization process.

3. TERMS & DEFINITIONS

Resp Org

The Responsible Organization (Resp Org) is the entity identified by the Toll Free Service Subscriber or its agent, who assumes the duty of managing and administering the appropriate records in the SMS/800.

ENUM Registrar

An entity that, at the direction of E.164 number assignees (Toll Free Service Subscribers for the purposes of this document) ,together with an ENUM Tier 1 registry, provides registration services to ENUM Registrants.

ENUM Registrant

The authorized E.164 number assignee (Toll Free Service Subscriber for the purposes of this document) who chose to subscribe to ENUM.

ENUM Applicant

The prospective ENUM Registrant, or its authorized agent.

Toll Free Service Subscriber

The entity with the right to control a toll free number, including Resp Org selection and definition and management of all final PSTN termination points for the toll free service

Authentication

The process of verifying the ENUM Applicant's identity.

Authorization

The process of verifying that the ENUM Applicant is either the Toll Free Service Subscriber (the prospective ENUM Registrant) or its authorized agent.

4. ROLES AND RESPONSIBILITIES

4.1 Resp Org

In the Public Switched Telephone Network (PSTN), the Resp Org acts as the Toll Free Service Subscriber's agent. The Resp Org may or may not also be (one of) the toll free service providers for the toll free number. The Resp Org knows or can determine the identity of the Toll Free Service Subscriber associated with each of the toll free numbers for which it is responsible.

4.2 ENUM Registrar

The Registrar is responsible for taking registration requests from Applicants, validating the Applicants' authority to register the number in question and interfacing with the Tier 1B Registry to establish a pointer to the Registrant's Tier 2 nameserver from the Registry's nameservers.

Registrars may also provide, directly or through outsourcing, the Tier 2 function, or may interact with a Registrant-selected Tier 2 or Application Service Provider (ASP) to provision NAPTR records on behalf of the Registrant.

The Registrar is responsible for periodically revalidating registrations and terminating them if validation fails.

4.3 ENUM Applicant

The ENUM Applicant shall provide documentation necessary to complete the registration process.

4.4 ENUM Registrant

The Registrant is responsible for electing to register their toll free telephone number in ENUM, selecting a Registrar to accomplish the registration, and choosing a Tier 2 Provider to host the NAPTR records for their number. Registrants are also responsible for canceling their registration if they release their toll free telephone number to the SMS/800 spare pool. [Note: Revision of the Industry Guidelines for Toll Free Number Administration for ENUM should add cancellation of ENUM registration on release of a toll free number to toll free service subscriber responsibilities.]

Registrants deal primarily with their Registrar through an interface that could take many forms (e.g., web, telephone, written mail). This interface is not standardized; it is a business decision left to Registrar discretion.

Registrants may also interact directly with their Tier 2 Provider. Again, the interface is determined by the business arrangement between the parties.

5. Architecture

Toll free number registration in ENUM will make use of the same split Tier 1 architecture as proposed by the Country Code 1 ENUM LLC Technical Advisory Committee for geographic numbers³, as shown in Figure 1. At Tier 0 is the RIPE NCC (Réseaux IP Européens Network Coordination Centre), which maintains the e164.arpa zone.⁴ Entries in the RIPE NCC name servers correspond to country codes and point to the name servers of the Tier 1 Registry that is authoritative for that country code. Entries in Tier 1 Registries normally correspond to individual telephone numbers and point to the Tier 2 name servers that hold the NAPTR records used to provide actual communication services.

Because Country Code 1 corresponds to an integrated numbering plan in which the country code is shared among several nations, the plan of the CC 1 ENUM LLC is to split Tier 1 functionality into a Tier 1A, which would receive the CC1 delegation from the Tier 0, and potentially multiple Tier 1Bs serving different CC1 (NANP) member states. Entries in Tier 1 A will correspond to NPAs and will point to the Tier 1B that holds per –number delegations for the numbers within the given NPA. Toll free NPAs, as they are shared by multiple NANP member states should be delegated to a common Tier 1B, which may or may not be one of the Tier 1Bs that serve geographic NPAs. The Tier 1 B Registry for Toll free Numbers will be required to deal directly with the CC1 ENUM Tier 1A Registry to arrange for the provisioning of NS records for the NPA it serves into the CC1 ENUM Tier 1A Registry.

The CC1 ENUM Toll free Tier 1B registry will be required to establish a business relationship with the CC1 ENUM Tier 1A Registry prior to registering any toll free NPA in e164.arpa. The nature of the business relationship will be defined by the contracting entity, embodied in a Registry agreement, This is necessary to ensure that each CC1 ENUM Tier 1B registry's records are properly maintained and that toll free NPAs are registered into Tier 1A only when authorized by NANP member states.

ENUM Registrars wishing to register toll free numbers will, in turn, be required to establish a business relationship with the CC1 ENUM Toll free Tier 1B registry prior to registering any toll free telephone number, in e164.arpa. The nature of

³ CC1 ENUM LLC Technical Advisory Committee Tier 1A Technical and Operational Requirements for an ENUM Tier 1A Registry for Country Code 1, June 2005.

⁴ The instructions regarding operations of the domain e164.arpa can be found at the URL:

<http://www.ripe.net/rs/enum/instructions.html>

The ITU-T TSB evaluates delegation requests. Information on how TSB will handle ENUM requests can be found under the bullet "Interim Procedures" at the ITU-T Web site at: <http://www.itu.int/ITU-T/inr/enum/>

the business relationship between the Toll free Tier 1B and the ENUM registrars will be defined by the contracting entity, embodied in a Registry agreement, and will be the same for all ENUM Registrars. This is necessary to ensure competitive equity between registrars in Tier 1B and to ensure that ENUM Registrant's records are properly maintained and that the assignee of the Toll free E.164 telephone number has decided to participate in ENUM. The Registry Agreement will also require that ENUM Registrars accept registration only for toll free numbers associated with NANP member states that have authorized population of toll free numbers in ENUM as detailed in Section 6, Provisioning. Authentication and Validation Entities work with the ENUM Registrar to verify Applicant identity and Authorization to register toll free numbers into ENUM.

The Tier 2 Provider for a toll free E.164 number maintains the actual NAPTR records that contain URIs (Universal Resource Identifiers) for specific communication services, and the Application Service Provider uses these records to provide those services to the number assignee (the Registrant.)

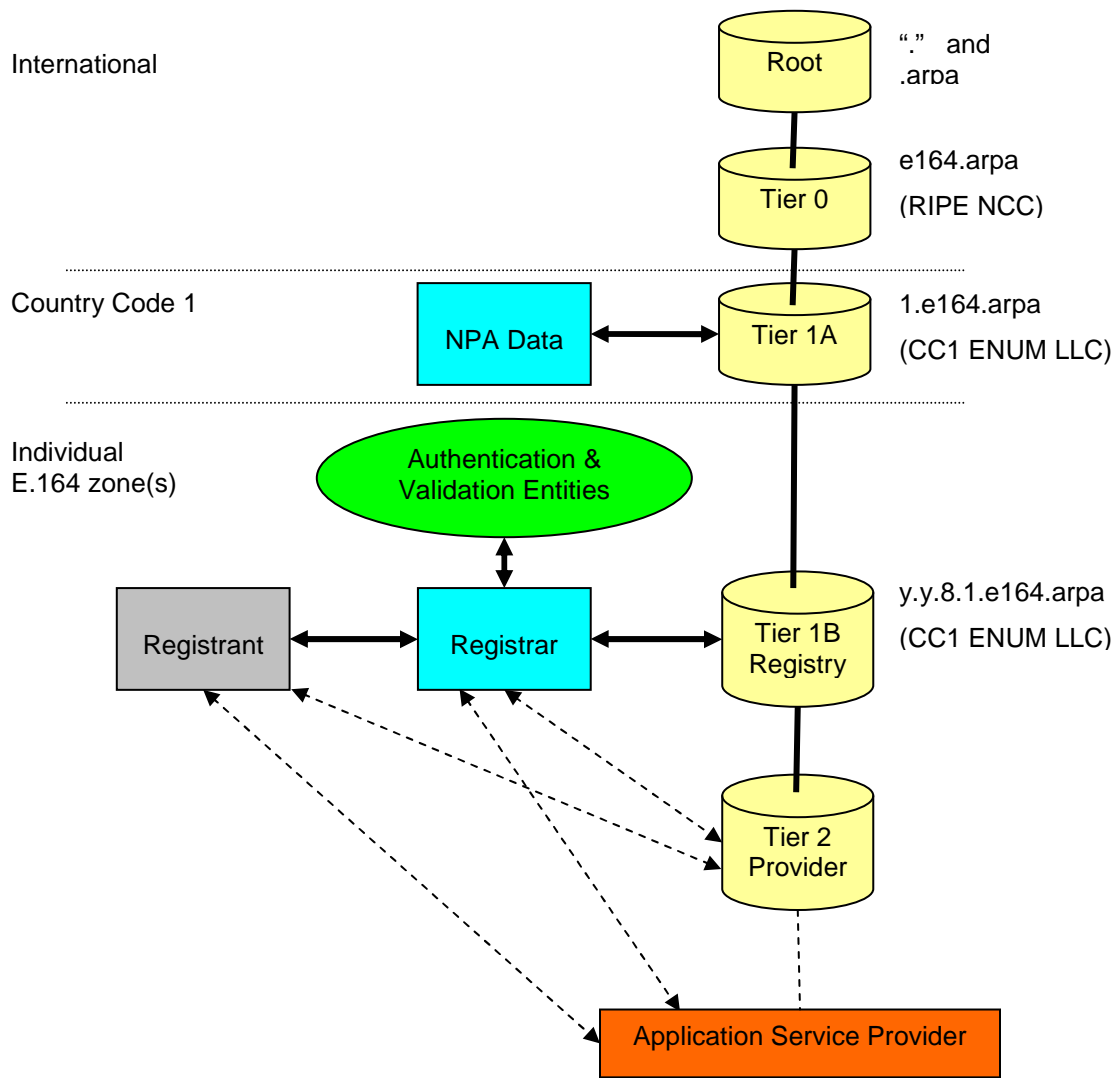


Figure 1 - ENUM Functional Architecture

6. PROVISIONING

In general, the provisioning process for toll free (non-geographic) numbers will be the same as for geographic numbers. An additional entity, the Resp Org, will be necessary for the purpose of confirming the identity of the Service Subscriber as the entity authorized to register the toll free number in ENUM. Certain procedures, such as NPA splits, do not impact toll free numbers themselves but may require changes in contact information.

One provisioning scenario adapted from ENUM Forum 6000_1_0 is presented in this Section to illustrate the provisioning steps.

6.1 NANP Country Opt-In or Opt-Out

The North American Numbering Plan (NANP) is comprised of 19 sovereign countries. No nation's toll free numbers may be registered in ENUM without that country having agreed that its toll free numbers are available for ENUM registration. Although all NANP nations may use toll free numbers, only the United States and Canada have implemented toll free number portability and make use of SMS 800. Accordingly, numbers shown as assigned in SMS 800 are presumed to be associated with the US and/or Canada and will be available for registration if the United States and Canada opt-in. Other nations' non-portable toll free numbers (see Sections 1-2) may be registered into ENUM if the corresponding nations choose to opt in to toll free number ENUM, but a separate process will need to be developed.⁵

6.2 Determination of Eligibility for ENUM Registration

As part of the ENUM registration process, the Registrar contacts the incumbent Resp Org in order to validate Applicant's authority to act as, or on behalf of, the Toll Free End-User Subscriber. The Resp Org will be asked to verify that it is indeed the Resp Org for the toll free number in question and thus the number is eligible for ENUM registration (assuming the US and Canada have agreed to toll free ENUM).

6.3 Example Provisioning Flow

ENUM Registrant Selects the Tier 2 at Initial Registration

In this example provisioning process flow, the ENUM Applicant selects the Tier 2 Nameserver provider before approaching an ENUM Registrar for ENUM registration.

⁵ If countries with non-portable toll-free numbers opt to open them for registration in ENUM, they will need to decide whether to make use of the toll-free Tier 1B used for portable numbers. If they elect to make use of a separate Tier 1B then Tier 1A must separately delegate portable and non-portable NPA-NXXs .

6.3.1 Assumptions

- The ENUM Applicant deals directly with the ENUM Registrar for registering ENUM for his/her toll free telephone number; no agent or broker is involved.
- The Tier 2 Nameserver Provider selected by the ENUM Applicant is the technical contact for the registered ENUM domain name.
- The ENUM Applicant is to be the billing and administrative contact for the registered ENUM domain name.

6.3.2 Provisioning Procedures

Provisioning procedures are illustrated in Figure 2.

- 1) An individual ENUM Applicant selects the Tier 2 Nameserver Provider and provides the following information to that Tier 2 Nameserver Provider:
 - One of the two below:
 - 1) Naming Authority Pointer (NAPTR) Resource Records (RRs).
 - 2) If Tier 2 Nameserver Provider can formulate the NAPTR RRs
 - Toll free TN or ENUM domain name.
 - Application-related information (e.g., application/service types and e-mail addresses and sip, fax and tel Uniform Resource Locators (URLs)) and the preference value, if specified, for each application-related address.
 - The ENUM Registrant's contact information, consisting of at least one but not more than two instances of the postal information below:
 - Name or role/title
 - [Organization]
 - Address ([street], city, [state/province], [zip code/postal code] and country code
 - [Phone number and extension, if any]
 - [Fax number]
 - E-mail address
 - Any AAA (Authentication, Authorization and Accounting) related information required by Tier 2 Nameserver provider.
- 2) The Tier 2 Nameserver Provider verifies the information provided by the ENUM Applicant (e.g., for the purpose of accounting/payment), sets up a user account for the ENUM Registrant, and acknowledges receipt of the information.
- 3) If the account is not approved (e.g., due to bad credit), the Tier 2 Nameserver Provider informs the ENUM Applicant about its decision.

- 4) If the account is approved, the Tier 2 Provider assigns at least two nameservers, provides the following information to the ENUM Registrant and updates the zone file for this ENUM domain name at the assigned nameservers:
 - A list of nameserver host names associated with ENUM domain name
 - Technical Contact for the ENUM domain name
- 5) The ENUM Applicant selects an ENUM Registrar and provides the following information to that ENUM Registrar to enable the ENUM Registrar to complete the Authentication and Authorization procedures (See section 7) and to register ENUM service for his/her toll free TN:
 - Toll free TN
 - A list of nameserver host names associated with the ENUM domain name
 - ENUM registration period (e.g., two years)
 - ENUM Registrant's information and technical, administrative and billing contact information
 - The name of the current Resp Org for the toll free TN
 - An agency letter authorizing the ENUM Registrar to pose the question to the Resp Org, "Is this Applicant the Toll Free Service Subscriber of record for the toll free telephone number", and a separate agency directive authorizing the Resp Org to respond (A form including these Registrar-Resp Org directives is to be developed).
 - Any additional AAA-related information required by ENUM Registrar

The ENUM Registrar may interact with the ENUM Applicant for more information if needed.

- 6) The ENUM Registrar then follows proper Authorization procedures to validate that the ENUM Registrant is in fact the authorized Toll Free Service Subscriber for the toll free TN corresponding to the ENUM Domain Name (methodology and procedures are defined in Section 7)
- 7) If the Authorization fails, the application for ENUM is rejected. The process also stops if the ENUM Applicant is not found to be the authorized representative of the Toll Free Service Subscriber.
- 8) If the Authentication and Authorization are successful, the ENUM Registrar must check whether there is an existing ENUM registration for the same ENUM domain name from a different ENUM Registrant.
 - If YES, ENUM Registrar initiates the dispute resolution process (methodology and procedures defined in Annex A).
 - If NO, the ENUM Registrar proceeds with Step 9.

- 9) ENUM Registrar registers the ENUM domain name with Tier 1B Registry by providing the following information:
 - Request for new ENUM domain name registration
 - ENUM domain name (e.g., 4.3.2.1.3.3.5.0.0.8.1.e164.arpa)
 - A list of nameserver host names
 - ENUM Registration period (e.g., two years)
 - If required, the ENUM Registrant's contact information and technical, administrative and billing contact information
- 10) After successful Authentication of the Registrar, the Tier 1B Registry determines whether there is an existing ENUM registration for the same ENUM domain name.
 - If YES, it initiates the dispute resolution process (methodology and procedures defined in Annex A).
 - If NO, the Tier 1B Registry acknowledges to ENUM Registrar that the ENUM domain name registration is accepted, and assigns a registration expiration date. The Tier 1B Registry then performs the zone file updates to add the NS RRs of this ENUM domain name to its nameservers. After the zone file updates have been performed at Tier 1B Registry, real-time DNS queries for this particular ENUM domain name will be able to retrieve the nameserver information where NAPTR RRs are hosted.
- 11) After receiving the positive acknowledgement from Tier 1B Registry, ENUM Registrar records the successful ENUM registration, and may inform the ENUM Registrant about the successful registration of his/her ENUM domain name.

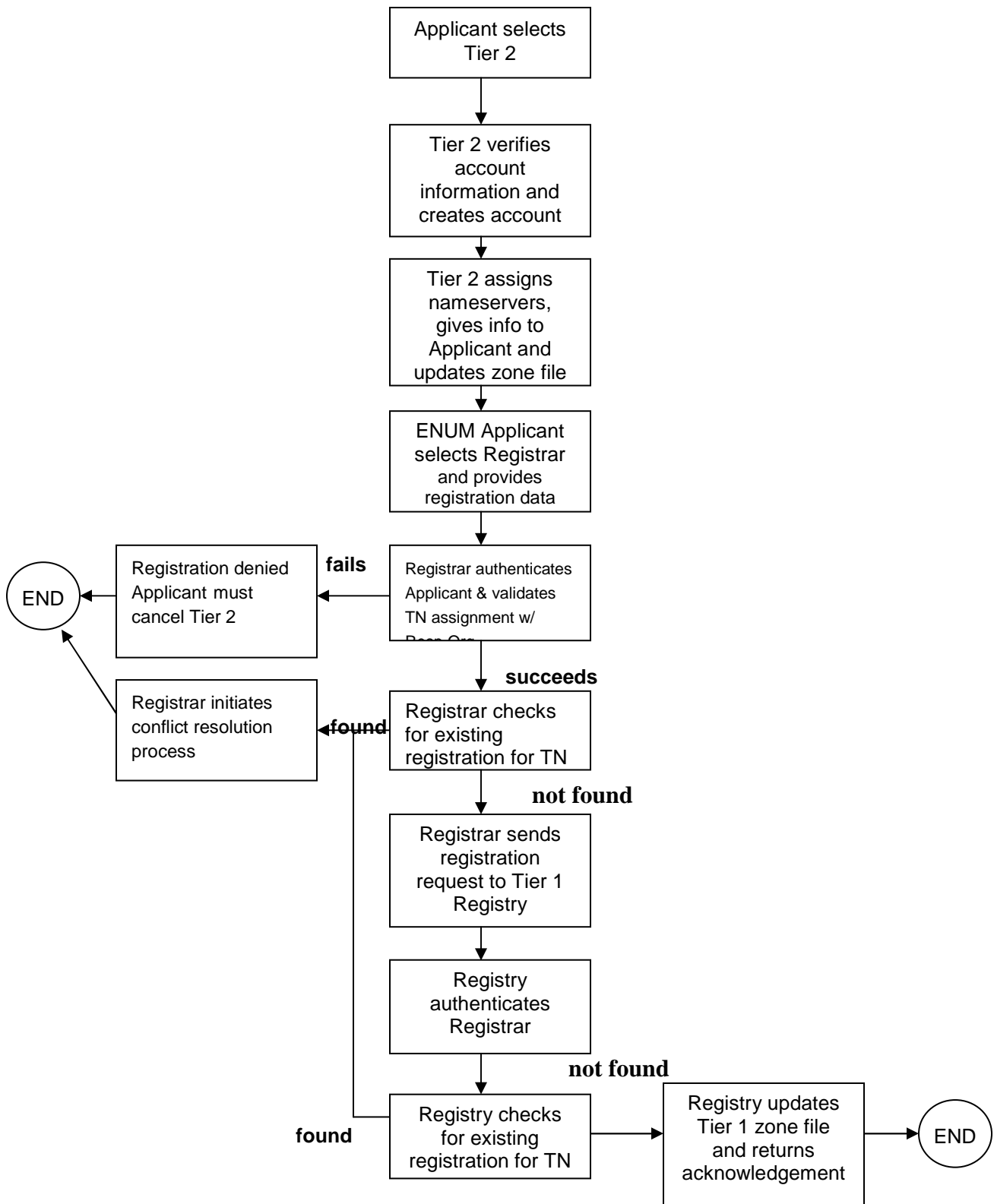


Figure 2 – Flow Chart for Initial ENUM Registration

7. AUTHENTICATION AND AUTHORIZATION

This section discusses the Authentication and Authorization methods that must be implemented for non-geographic NANP numbers, in order to verify both the identity of the ENUM Applicant (Authentication) and the authority of the ENUM Applicant to register the toll free number(s) (Authorization).

7.1 Authentication

Standard methods may be used to authenticate the Applicant (be it the actual Toll Free Service Subscriber or their agent). Examples of Authentication methods include, but are not limited to:

- Obtain credit card number. The Registrar can verify with the card issuer that the name of the cardholder corresponds to that provided by the Applicant.
- Obtain a copy of the Applicant's motor vehicle driver's license, passport, or other government-issued identification. (Only the Applicant should be in possession of these documents.)
- Obtain a copy of the most recent phone bill. This may help to verify the identity of the Applicant but should not be used to establish their identity as the Toll Free Service Subscriber.
- Contact Toll Free Service Subscriber (via information obtained from the Resp Org) verifying registration request.
- For wireless/paging numbers, send password via Short Message Service or text page to the Applicant's wireless handset or pager for Authentication.

7.2 Authorization

Two basic scenarios have been identified for the provisioning of toll free numbers into ENUM, centered around the relationship among the ENUM Applicant, ENUM Registrar, Toll Free Service Subscriber and the Resp Org. The scenarios are:

1. The ENUM Applicant is an ENUM Registrar and Resp Org for the Toll Free Number.
2. The ENUM Applicant is not an ENUM Registrar nor Resp Org.

7.2.1 ENUM Applicant is an ENUM Registrar

In this scenario the ENUM Applicant is acting as agent for the Toll Free Service Subscriber and is both Resp Org for the number and an ENUM Registrar. Accordingly, Authentication of ENUM Applicant by ENUM Registrar is moot as they are one and the same. As Resp Org, the ENUM Registrar should know the identity of the Toll Free Service Subscriber and must register the number in ENUM at their direction. Once the ENUM Registrar/Resp Org/Applicant has verified the Toll Free Service Subscriber's request to register for ENUM, it can then register the toll free number with the Tier 1B Registry without the necessity of interacting with other entities to achieve Authentication and Authorization.

7.2.2 ENUM Applicant is neither an ENUM Registrar nor a Resp Org

In this situation, the ENUM Registrar must:

- Authenticate the ENUM Applicant by standard procedures. If Authentication fails, the registration is rejected.
- Verify the authority of the ENUM Applicant to register the toll free number. If Authorization fails, the registration is rejected.
 - 1) The ENUM Applicant will present the ENUM Registrar with the name of the Registrant (Toll Free Service Subscriber), the identity of the Resp Org for the toll free number, and, if Applicant is acting as agent for the prospective Registrant / Toll Free Service Subscriber, satisfactory evidence of agency. In addition, Applicant will present a letter of agency allowing the Resp Org to verify to the Registrar that the prospective Registrant is indeed the Toll Free Service Subscriber.
 - 2) The ENUM Registrar will then consult the publicly available SMS/800 web site to verify that a valid Resp Org was supplied, and to obtain contact information for the Resp Org.
 - 3) The ENUM Registrar will then contact the Resp Org, transmit agency letter(s), and determine if the ENUM Applicant (or, when an agent is involved, the party providing Authorization to that agent) is in fact the Toll Free Service Subscriber. The Resp Org need not disclose the Subscriber identity, but only indicate whether the name and address supplied by the ENUM Applicant matches the Toll Free Service Subscriber name in the Resp Org's records. If the information does not match, then the Subscriber is not verified and the registration is rejected.
 - 4) When the Resp Org is unable to determine the identity of the true Toll Free Service Subscriber (e.g. certain resale relationships), successful registration will follow presentation by the ENUM Applicant of clear and unambiguous documentation from the Toll Free Service Subscriber that the ENUM Applicant is authorized to initiate the Registration. If multiple levels of resale are involved the ENUM Applicant must provide the ENUM Registrar a chain of documentation that links the Toll Free Service Subscriber to the ENUM Applicant, which can then be verified through the Resp Org for the number.

Once the ENUM Registrar has authenticated the Applicant, and verified that the Applicant is authorized by the Toll Free Service Subscriber to initiate the registration, then the ENUM Registrar can proceed with the registration process.

A. Annex - Procedures for Resolution of Non-Geographic Number Registration Conflicts

A.1 Introduction

This section describes procedures for resolution of conflicting ENUM registration claims based on toll free telephone number assignment status. A primary ENUM principle is that only the current Toll Free Service Subscriber for a given toll free telephone number may apply for, establish, or change the ENUM registration for that number. Conflict resolution will, therefore, consist of identifying which, if any, party to the conflict is the current Toll Free Service Subscriber or the valid Toll Free Service Subscriber's legal representative or agent.

A.2 General Principles

All Registries, Registrars, and Registrants are required to use these procedures and abide by the outcome. These procedures will be incorporated by reference into every ENUM registration agreement. The Tier 1B Registry, in an unbiased manner, will perform the dispute resolution process. Either party to the dispute may appeal the result to a court with competent jurisdiction, but only after completing the process described in this document. The Tier 1B Registry shall not remove an existing registration prior to the Registry's determination that the current Registrant is not the actual Toll Free Service Subscriber.

A.3 Conflict Identification

This section lists situations that could trigger the dispute resolution process:

- A Registrar tells an Applicant that the toll free number is already registered or that the Registrar's attempt to register a toll free number in the Tier 1B Registry has been refused by the Tier 1B Registry because the number is already registered.
- The Toll Free Service Subscriber discovers by other means that the number is registered in a Tier 1B Registry (e.g., by performing an ENUM DNS query).

A.4 Dispute Resolution Process

A.4.1 Process Initiation

When a Registrar has informed an Applicant that the toll free number in question has already been registered, the Applicant (the "Complainant") may initiate the dispute resolution process by submitting a Dispute Initiation Form [by e-mail or postal mail] to the Tier 1B Registry responsible for that number. If the Toll Free Service Subscriber for a given toll free number discovers by another method that the number is registered in an ENUM Tier 1B Registry, the Toll Free Service Subscriber (the "Complainant") may initiate the dispute resolution process in the same manner, even if the Toll Free Service Subscriber does not intend to register the number and only wants the existing registration removed from the Registry.

A.4.2 Determination of Toll Free Service Subscriber

In order to verify which, if any, of the parties to the dispute is the Toll Free

Service Subscriber for the toll free number in question:

- The Tier 1B Registry will verify that the parties are disputing the registration of the same toll free number. The Tier 1B Registry will use the same types of methods used by Registrars during initial registrations and periodic verification reviews, to identify the Toll Free Service Subscriber for the toll free number in question, including making contact with the Resp Org on the number to verify the identity of the Toll Free Service Subscriber. The Tier 1B Registry will need detailed identity information provided by the disputing parties in order to obtain assignment information.
- If the Tier 1B Registry is unable to contact the current Registrant, or if either party does not cooperate in providing the information necessary to allow the Tier 1B Registry to verify the Toll Free Service Subscriber, the Tier 1B Registry shall use definitive means to determine and document which party has the right to register the number. This must include establishing contact with the Resp Org on the number. In this situation, the parties cannot hold the Tier 1B Registry liable for a decision that is reversed upon appeal.

A.4.3 Time Frame

The Dispute Resolution process commences when the Tier 1B Registrar receives a Dispute Initiation Form. Upon receipt of the Form, the Tier 1B Registry will within 3 business days send a notification to the Registrar, the current Registrant and the Complainant. The Dispute Resolution process, including resolution, should take no more than 7 business days from receipt of the Dispute Initiation Form by the Tier 1B Registry. The Resp Org is the definitive validation source and is normally easily available for such determinations.

A.4.4 Remedies

The remedies available to the Complainant pursuant to these Procedures shall be limited to requiring the cancellation of the registration or the transfer of the registration to the successful Complainant, if so desired.

A.4.5 Transfers During a Dispute

This section addresses transfers of an ENUM Registration to another Registrant or Registrar. The current Registrant may not transfer the registration to another Registrant or Registrar: (i) during a pending Dispute Resolution proceeding; or (ii) during a pending court proceeding or arbitration commenced regarding the registration, unless the party to whom the registration is being transferred agrees, in writing, to be bound by the decision of the court or arbitrator.

A.4.6 Procedure Modifications

These Procedures may be modified at any time by the Contracting Authority. The revised Procedures will be published at least thirty (30) calendar days before they become effective. Unless this Procedure has already been invoked by the submission of a Dispute Initiation Form to a Tier 1B Registry, in which event the version of the Procedure in effect at the time it was invoked will apply until the dispute is over, all such changes will be binding upon Registrants with respect to

any registration dispute, whether the dispute arose before, on or after the effective date of the change. In the event that a Registrant objects to a change in this Procedure, the Registrant's sole remedy is to cancel the registration. The revised Procedure will apply to all parties until the registration is cancelled.

A.4.7 Fees

The Tier 1B Registry may assess a reasonable fee when a complaint is filed. Should the complaint be determined valid by the Registry, the fee will be refunded to the Complainant. Costs of handling a complaint that is deemed valid shall be paid by the Registrar which improperly entered the registration. A maximum fee shall be determined by the ENUM LLC.