



enum in the United States

The US ENUM Forum

A Progress Report

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[Background]

- December 2000
 - NTIA holds an informal meeting to discuss enum issues
 - Proposal comes forward to convene an ad hoc group for enum in the United States
- January 2001
 - Ad hoc study group formed
 - Goal: complete work in the Spring 2001

[Ad Hoc Report]

- Ad hoc group started working in February 2001
- Met via teleconference and in a series of face-to-face meetings
- Primary outputs were:
 - A report back to the Department of Commerce and NTIA
 - Convening of a new organization: enum Forum

[enum Forum]

- Who are they?
 - Interested participants from the Internet and telecommunications industries
- What was their goal?
 - Further the work presented in the Ad Hoc group's report
 - Lay the groundwork for ENUM implementation in the U.S.

[enum Forum website]

- www.enum-forum.org

[enum Forum and ITU]

- ITU-T Study Group 2 has developed a Supplement to educate member states
- Recommendation on the delegation of E.164 country codes is in process
 - Interim procedures govern the process of such delegations into “e164.arpa” using RIPE-NCC as the Tier 0 Registry for e164.arpa.

[First Steps]

- Significant difference of opinion on architecture for enum in the United States
- Also, disagreements on how provisioning should take place
- enum Forum charged with the task of coming up with a common point of view for architecture and provisioning

[enum Forum]

- enum Forum divided into a series of task groups
 - Architecture/infrastructure
 - Provisioning
 - Applications
 - Security/privacy
 - Interworking
 - Legal

[enum Forum Work Plan]

- Published August 2001
 - Established deliverables for each of the task groups
- Architecture task group
 - Describe the tier 1 structure
 - Also, the tier 1 and tier 2 operational requirements
- Provisioning task group
 - Provisioning requirements
 - Service termination requirements

[Other Parts of the Work Plan]

- Work plan deliverables for other task groups
- Security task group
 - Number authorization/verification procedures
 - Consumer privacy protection
- Applications task group
 - enum user applications guide
- Interoperation task group
 - Interoperability report
- Goal: to be completed summer 2002

[How Work Proceeded]

- Each of the task groups met separately
- Forum met face-to-face occasionally
- Task group interim reports
 - www.enum-forum.org/workingdocs.html
- In general, work merged into a single unified deliverable

[Functions: Registrant]

- Registrant

- Responsible for electing to register their telephone number in ENUM
- Selecting a Registrar to do accomplish the registration
- Choosing a Tier 2 Provider to host the NAPTR records for their number

[Functions: Registrar]

- Registrar
- Takes registration requests from Registrants
- Validates authority to register the number in question
- Interfaces with the Tier 1 Registry
 - Establishes a pointer to the Registrant's Tier 2 nameserver from the Registry's nameservers

[Functions: Tier 1 Registry]

- Tier 1 Registry
 - Responsible for Tier 1 nameservers
 - Indicate which tier 2 provider has the corresponding NAPTR record for any country code 1 phone number
 - Tier 1 registries nameservers respond to ENUM DNS queries with the appropriate Tier 2 host name
 - Accepts registrations from Registrars
 - Administers the dispute resolution process

[Functions: Tier 2 Registry]

- Tier 2 Registry
 - Responds to ENUM queries for served numbers by providing the NAPTR records associated with the queried number
 - Provisioning the NATPR records requested by the ENUM Registrant

[What's Happened Recently]

- Specifications for United States Implementation of ENUM
- February 2003
- Product of general agreement by the enum Forum
- Called “One Step Closer”
 - Lays out the fundamental structure for Tier 1 service, Registrar functionality as well as guidelines for the Tier 2 providers

[Unified Document]

■ Major Features

- Tier 1 operational security and administrative requirements
- Privacy Considerations Statement
- Tier 2 Requirements and Guidelines
- Provisioning Procedures
- Authentication and Verification Procedures
- Dispute Resolution

[Tier 1 Requirements]

- Tier 1 registry is a SRS registry
 - Allows registrars to compete to enter names (phone numbers)
 - Allows an unlimited number of registrars
 - Uses EPP (and IETF standard) between registry and registrars
 - Supports the so called “thick” registry model
 - Tier 1 Registry will work with the U.S. ENUM industry to develop extensions to EPP for the purposes of supporting U.S. ENUM

[Other Tier 1 Specifications]

- Unified document specifies properties of the database to be used for registrations
- Also,
 - Generation and propagation of zone files
 - Distribution and operation of Tier 1 nameservers
 - Service level standards
 - Data escrow for reliability

[contactinfo]

- Instead of a conventional WHOIS service
- Third party diagnostic service
 - Provides a way of contacting the necessary entities for trouble resolution
 - Intended to avoid privacy problems of whois
 - Any Tier 1 candidate is required to describe how they would provide this service
 - meet the needs of the communications industry and the public
 - safeguarding the personal information of the Registrants

[Tier 2 Specifications]

- Effectively builds NAPTR records
- Updates the zone file regularly
- Does some basic duplicate registration
- Abide by the privacy policy

[Provisioning]

- The proposal provides an extensive outline of:
 - How enum registrations take place
 - How the registrations are maintained
 - The information collected and the flow of that information amongst registrars and tiers
- A significant part of the document

[Privacy Considerations]

- No telephone numbers are registered without the consent of the owner
- Registrants will choose exactly what information will be included in their NAPTR records and what preferences are set
- They should have a choice in determining how the information they will be disclosing will be used

[Four Key Privacy Issues]

- Open disclosure of the Registrant's NAPTR records in the public DNS
- ENUM registration and initial provisioning
- Disclosure of Registrants' PII to unauthorized third-party entities
- Third party diagnostic capability (e.g. ContactInfo databases)

[Fair Information Practices I]

- Document provides a proposal for fair use of information
- *Notice:*
 - An Individual's right to receive certain information when data relating to the individual is collected.
- *Choice:*
 - An Individual's right to object to certain types of data collection/use with respect to that individual.

[Fair Information Practices II]

- *Access:*
 - An Individual's right to access data relating to the individual that is collected.
- *Security:*
 - A guarantee that the data will be secured against unauthorized access.
- *Quality:*
 - An Individual's right, when necessary, to have data relating to the individual corrected.

[Fair Information Practices III]

- *Relevance:*

- A guarantee that the use of personal data will be limited to specified uses relevant to the purpose for which the data was collected.

- *Timeliness:*

- An obligation to retain the data only for as long as is necessary.

[Standards for Authorization]

- Identity and authority
- Each requires verification of some kind
 - Mechanism to avoid hijacking of addresses
- Proposal provides scenarios for different kinds of registrations

NTIA Letter to State Department

- Letter from NTIA to State
- February 2003
- Take advantage of e164.arpa
- Encourages State Department to fully support work at ITU to complete ENUM recommendations
- Set of principles for enum in the United States

[Proposed Principles for enum]

- Support competition and innovation
- Preserve sovereignty
- Protect security and privacy for users
- Preserve opportunity for alternative deployments
- Preserve security and stability for operations
- Allow for interoperability

[Conclusions in NTIA Letter]

- Before opting in to e164.arpa
 - Create rules for selecting the tier 1 operator
 - Coordinate process for all nations in country code 1
 - Coordinate with State, FCC and other federal agencies
 - Convene a series of meetings to get the process started/completed
 - www.ntia.doc.gov

[Responses to Letter]

- enum Forum is working on a response
- enum Forum continuing other work
- FCC Responded “affirmatively”