

# IDN Variant TLD Program

## Update and Next Steps

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# A glimpse at Program's completed work

## 2010

ORIGINATION

SEPT

Board resolution to develop appropriate solutions for IDN Variant TLDs

## 2011

PHASE ONE

FEB-APR

Work plan proposal for the Study of Issues Related to the Delegation of IDN Variant TLDs

APR-JUN

Formation of six IDN Variant TLD Case Study Teams

JUN-OCT

Arabic Case Study  
Chinese Case Study  
Cyrillic Case Study  
Devanagari Case Study  
Greek Case Study  
Latin Case Study

OCT

Case Studies Report Published

PHASE TWO

NOV-FEB 2012

Integrated Issues Report

JAN

Establishment of the IDN Variant TLD Issues Project

## 2012

PHASE THREE

FEB-APR

IDN Variant Issues Project Proposed Project Plan for Next Steps

JUN-JUN 2013

Project 1 / Development of the Label Generation Rules Tool (projected end date)

JUN-MAR 2013

Project 2.1 / Procedure to Develop and Maintain the Label Generation Rules for the Root Zone in Respect of IDNA Labels

JUN-MAR 2013

Project 6 / Examining the User Experience Implications of Active Variant TLDs

MAY-JUN

IDN Variant TLD Program Revised Program Planning



# Agenda

- + Program Overview
- + Presentation of projects completed in Phase 3
- + Procedure to Develop and Maintain the Label Generation Rules for the DNS Root Zone in Respect of IDNA Labels Project
- + Examining the User Experience Implications of Active Variant TLDs Project
- + Next Steps
- + Discussion and Questions

**Procedure to Develop and Maintain  
the Label Generation Rules  
for the DNS Root Zone  
in Respect of IDNA Labels Project  
"The IDN Root LGR Procedure"**

# Label Generation Rules (LGR) for IDNA Labels in the Root Zone

- + DNS labels as useful mnemonics
- + Requires that labels be in familiar and recognized writing
- + Not every word may be a valid label
- + Adding IDNA labels requires rules
- + Existing Root labels not affected

# Variant Labels

- + **For some languages, different code points can be considered exchangeable**
  - + Example: simplified and traditional Chinese
- + **Prevent allocation of IDN variant TLDs to competing applicants**
- + **Allow allocation of some IDN variant TLDs to original applicant**
- + **LGR define variants and their possible disposition**

# IDN Root LGR Procedure Goals

- + **Populate the code point repertoire and the Label Generation Rules for IDNA labels for the root zone.**
- + **Provide Utility and Coverage for additional scripts and languages while minimizing the risk to root zone as shared resource.**
- + **Application of IDN Root LGR can be automated.**



# IAB Principles

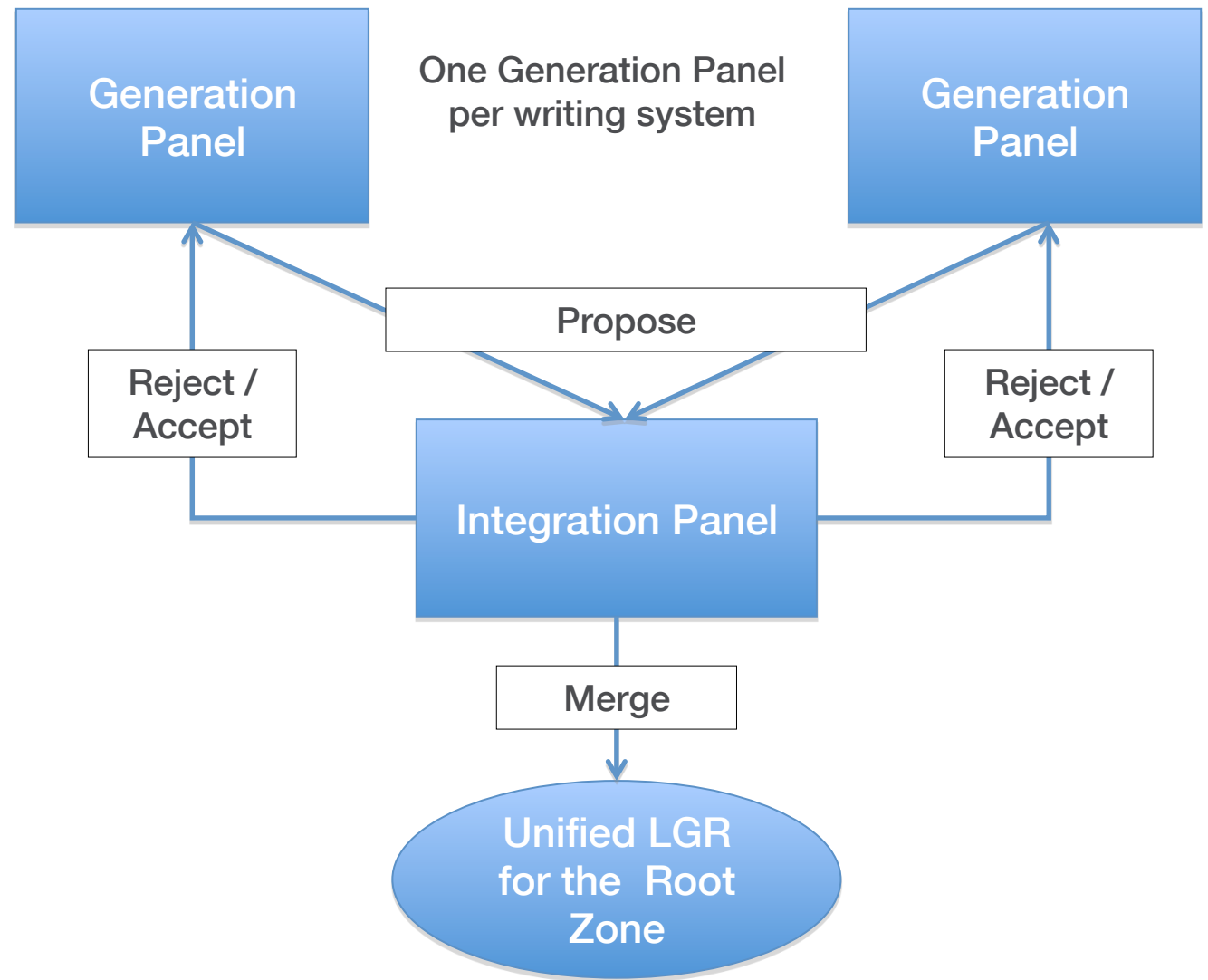
- + The design and the operation of the procedures to develop the Root Zone LGR are governed by a set of principles originally developed by the IAB:
  - + Longevity
  - + Least Astonishment
  - + Contextual Safety
  - + Inclusion
  - + Simplicity
  - + Predictability
  - + Stability
  - + Letter
  - + Conservatism
- + Of these, the **Conservatism** principle is the overarching one, requiring that controversial or risky rules must not be added to the LGR

# Two-stage IDN Root LGR Procedure

Nothing gets added unless generation and integration panel agree

Panels are independent and have separate membership

Constrained by Principles



# Generation Panels

- + **The process will be driven by volunteer-based Generation Panels that will:**
  - + develop the set of rules for a particular writing system;
  - + create output representing the desired LGR elements for that environment; and
  - + submit their proposals for the IDN Root LGR to the Integration Panel;
  - + consist of volunteer experts in a given writing system, plus additional ICANN-contracted experts if needed;
  - + thus representing both the community interests as well as providing detailed expertise on a given writing system.

# Integration Panel

## + The Integration Panel will:

- + consist of independent experts in DNS, IDNA, Unicode and linguistics;
- + accept or reject Generation Panel proposals until agreement is reached;
- + integrate the Generation Panels' proposals into a single, unified IDN LGR for the Root Zone;
- + take into account the need for a secure, stable and reliable DNS Root Zone;
- + make decisions by unanimity only.

# IDN Root LGR Procedure Output

- + **Overall Repertoire for the Root**
- + **Divided into sub-repertoires by script**
  - + sub-repertoires may overlap
  - + sub-repertoires are identified by “tags”
  - + IDN label applications will be tagged to select sub-repertoire
- + **IDN labels will be constrained to be:**
  - + wholly within the tagged script sub-repertoire
  - + structurally well formed as whole label  
(crucial for complex scripts)

(continued)

# IDN Root LGR Procedure Output (continued)

- + **Labels in some writing systems may have variants**
  - + Variants are defined globally, not by sub-repertoire
  - + Disposition of variants depends on the sub-repertoire
- + **Variants can be:**
  - + Blocked (may never be activated)
  - + Allocatable (not all allocatable variants should necessarily ever be activated)
- + **Machine readable format for automatic processing**

# Example

+ IDN-TAG (zh) - Applied for String: 大發 U+5927, U+767C

(A): U+5927 大; U+53D1 发

(B): [U+5927 大; U+5F42 𪛗]

[U+5927 大; U+9AEA 髮]

[U+5927 大; U+9AEE 𪛘]

Variant Labels  
(with disposition)

+ IDN-TAG (ja) - Applied for String: 大發 U+5927, U+767C

(A): ----

(B): [U+5927 大; U+9AEA 髮]

[U+5927 大; U+9AEE 𪛘]

[U+5927 大; U+53D1 发]

[U+5927 大; U+5F42 𪛗]

- + No matter how applied for, the same string always generates the same variants which are then not available for other applicants. But only in the Chinese case (zh), is one of the variants allocatable for possible activation (A).

# Initial IDN LGR for the Root

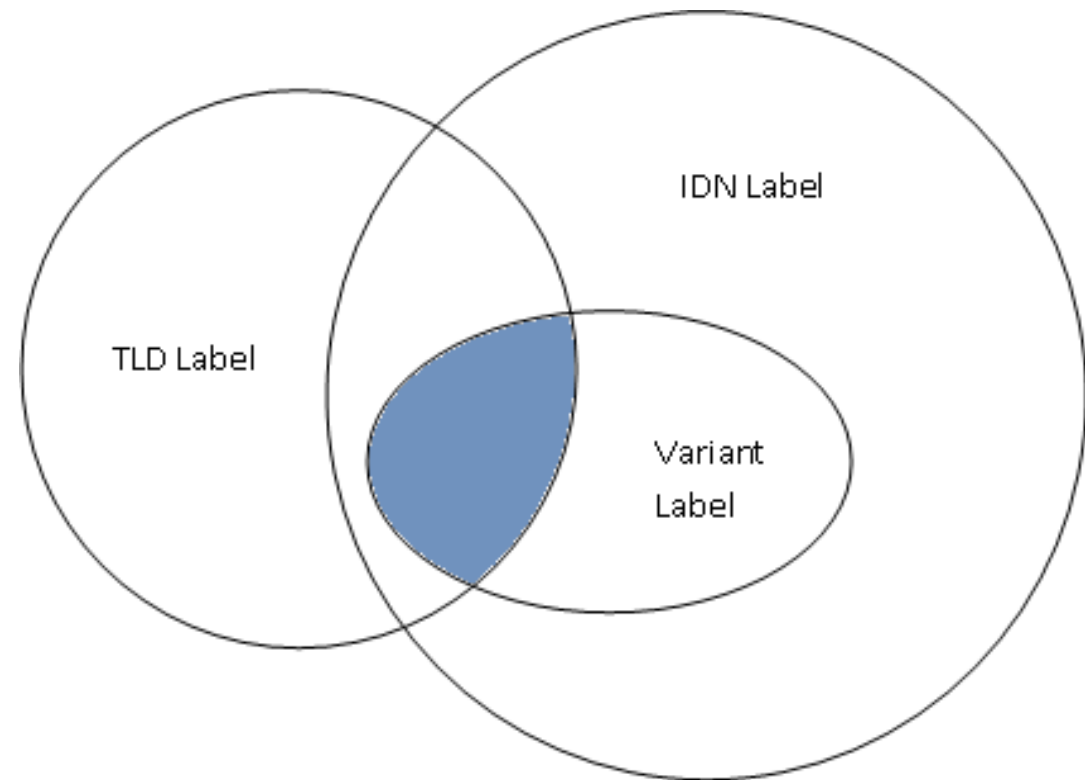
- + An initial IDN Root LGR must be based on a set of Generation Panel outputs that are reasonably comprehensive and self-contained, so as to not be invalidated by later additions from upcoming Generation Panels.
- + If/when the Integration Panel has strong reason to believe that there will be no risk from adding future writing systems, it may release a version of the IDN Root LGR.
- + The more and the sooner that Generation Panels are formed, the sooner this point can be expected to be reached.



# Examining the User Experience Implications of Active Variant TLDs Project

# Scope of P6 study

- + Focus on TLD label issues but consider FQDN implications
- + Take into account current variant implementations at the second level
- + Balance user expectations with consistent and secure implementations



# Existing Variant Experience at SLD level

	Chinese IDN ccTLDs (3)	Arabic IDN ccTLDs (5)
<b>Status of a variant set</b>	Treated as an atomic unit for operation & Registration data	
<b>Limits of active variants</b>	Consistent: 3	Different, upper limit varies from 3-6
<b>Choice of active variants</b>	All-simplified + all-traditional + one user-choice	User choice
<b>Members of variant set</b>	Consistent across all	Different within and across Arabic language ccTLDs
<b>Registration software</b>	Custom-built	
<b>Registrant support</b>	Hosting by Registrar to manage variants	Registry support for configuration

# Principles for Active IDN Variants TLDs

- + **Minimality:** Variants must be implemented with the least changes necessary in the DNS
- + **Security:** Variants must minimize the risk introduced by IDNs
- + **Equivalency:** Variants must direct users to related content and managed by the same entity
- + **Predictability:** Variants should behave and function as users expect in their language and script environments
- + **Consistency:** Variants should behave similarly within and across TLDs and supporting technology
- + **Manageability:** Variants should be straightforward to visualize and administer with supporting technology
- + **Ease of Use:** Variants should be easy to understand and use for new and existing Internet users



# User Roles

## + End Users

- + Those who use the variants

## + Registration Users/Managers

- + Those who manage registration of the variants
- + Registrants, Registrars and Registries

## + Technical Community

- + Those who deal with usability, configuration and diagnostics of the variants
- + System Administrators, Network Managers, Security Managers, Application Developers

# Issues Related to Active Variant TLDs

## + The issues grouped into the three categories

- + Use of variants
- + Registration management
- + Configuration and diagnostics



# Recommendations

- + Based on user experience principles and informed by current IDN variant practices. Recommendations are directed at four audiences:
  - + ICANN (11)
  - + Registries (6)
  - + Registrars (5)
  - + Technical Community (3)
- + The following slides highlight selected recommendations.

# Recommendation number 6.1.1. to ICANN

- + **Implement a well-defined and conservative variant TLD allocation process:**
  - + Approval of variant TLD must not be automatic
  - + Variant TLD application must clearly demonstrate necessity
  - + TLD variant(s) must be allocated to same entity
  - + All requirements for a TLD application also apply to the variant TLD application



# Recommendation number 6.1.2. to ICANN

- + **Maintain LGR repository and make it available to users and programmatically processable**
  - + Root zone LGR
  - + State of each variant (activated, withheld, blocked, etc.) of each allocated TLD
  - + Second-level LGR submitted for each TLD

# Recommendation number 6.1.3. to ICANN

- + **Develop minimal, simple and consistent IDN LGR for the root zone**
  - + For *character repertoire*: Minimally needed by a given script community; If no consensus for a given code point, default decision leave out; code points should be added at a script level
  - + For *variants*: code point variants be added based on security consideration and/or significant community need; Root LGR variants should be based on script; simpler variant rules preferred

# Recommendation number 6.1.6. to ICANN

- + **Recommend registries to apply relevant subset of IDN TLD LGR and state life cycle for SLD variants. Justify any deviation.**
  - + Second-level LGR conforms with root LGR to avoid contradiction
  - + Variant state life cycle for second level in line with root zone life cycle
  - + Second-level variants to same registrant
  - + Registry to advise the registrants to point SLD.TLD variants to the same or similar content

# Recommendation number 6.2.1. to Registries\*

## + Register any second-level variant labels on approval requirements

- + Registration of variant not automatic; initiated by registrant; variants withheld by default
- + Variant registered to the same registrant
- + All requirements for label apply to variant
- + Registration of variants be connected with primary, e.g., if the latter expires, the former also expires

\* Applies only to registries that offer IDNs for scripts that have variants



# Recommendation number 6.3.2. to Registrars\*

## + **Extend linguistic and technical support of IDN variants for registrants**

- + Support registrants to understand, prioritize, and select/update variants for registration
- + Support registrants to understand pricing and service level implications of variants

\* Applies only to registrars that support the registration of variants



# Recommendation number 6.4.1. to the Technical Community

- + **Based on requirements, consider enhancing software for administration and management of variants**
  - + Display current status of IDN variant labels (delegated, blocked, active, etc.)
  - + Display both A-labels and U-labels
  - + Update pattern-matching and searching tools for identifying and managing variants
  - + Make client/server software “variant aware” for enhanced monitoring and management of data traffic

# Recommendation number 6.4.2. to the Technical Community

- + **Software intended for Internet end users—such as web browsers, email clients, and operating systems—should support variants to the extent necessary to ensure a positive user experience**
  - + Search engines not treating variants equivalent
  - + Variants for user IDs, email addresses, etc.
  - + Keyboards not supporting variants
  - + History logs not deleting variants for privacy settings
  - + Auto-complete functionality not variant sensitive
  - + Sessions not consistent with variants

# Next Steps



# Next Steps - Phase 4 Overview

- + Implement the Procedure to Develop and Maintain the Label Generation Rules for the DNS Root Zone in Respect of IDNA Labels**
- + Collaborate with Sponsoring Organizations and Advisory Committees for their input and guidance on the implementation of the User Experience study recommendations**
- + Finalize the LGR tool format specification**

# Project 2.2

- + **Implementation of the Procedure to Develop and Maintain the Label Generation Rules for the DNS Root Zone in Respect of IDNA Labels**
  - + This project will implement the IDN Root LGR Procedure developed in Phase 3
  - + Project will develop the infrastructure needed to populate and maintain the IDN Root Label Generation Rules

# Project 2.2

## + Project 2.2 work includes:

- + Recruiting the Integration Panel
- + Establishing the Pool of Advisors, including the following areas of expertise: DNS, IDNA, Linguistics and Unicode
- + Initial setup work by the Integration Panel, Advisors and staff to generate the foundation of work for LGR (see p2.1)
- + Reaching out to communities to form Generation Panels for their writing systems (see p2.1)
- + Preparing supplementary guidelines and support infrastructure for Generation Panels

# Project 7

## + Updates to new gTLD and IDN ccTLD Programs

- + Invite Sponsoring Organizations and Advisory Committees to provide input and advice on the best approach to implement the recommendations
- + Update the new gTLD Applicant Guidebook and the IDN ccTLD Implementation Plan with changes recommended in the User Experience Study
- + Update the new gTLD Applicant Guidebook and the IDN ccTLD Implementation Plan with changes needed to process variants based on the IDN Root LGR

# Project 8

## + Updates to ICANN Operations

- + Implement changes identified in the new gTLD and IDN ccTLD Programs to support IDN variant TLDs
- + Changes include updates to ICANN and IANA processes as well as existing systems that will be impacted by the addition of IDN variant TLDs

# Project 1

## + Label Generation Rules Tool

- + This project is a continuation of work initiated in Phase 3
- + Focused on developing a specification to represent the IDN LGR and to perform the actions that Registries require to process IDN Variants
- + Internet Draft to gather input from interested parties available at: <http://tools.ietf.org/html/draft-davies-idntables>
- + Input should be sent to [vip@icann.org](mailto:vip@icann.org)

# Phase 4 Projected Timeline

2013

PHASE FOUR PROJECTED DATES

- APR > Project 2.2  
Setup of the Root Label Generation Rules Procedure
- APR > Project 7  
Update new gTLD and IDN ccTLD Programs

- JUL > Project 8  
Update ICANN/IANA processes and systems
- AUG > Community work on the first version of the root LGR

2014

- MID 2014-FUTURE  
Process IDN Variant TLDs for delegation\*  
\* Subject to Completion of initial LGR



# IDN Variant TLD Program

## Thank You



Discussion and Questions