

# 2013-04-11-TOC-REFERENCE MATERIALS .docx

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**2013-04-11-01b-Board Reference Materials-RSSAC  
Bylaws Revisions.doc**

### 3. Root Server System Advisory Committee

a. The role of the Root Server System Advisory Committee ("RSSAC") is to advise the ICANN community and Board on matters relating to the operation, administration, security, and integrity of the Internet's Root Server System. It shall have the following responsibilities:

1. Communicate on matters relating to the operation of the Root Servers and their multiple instances with the Internet technical community and the ICANN community. The Committee shall gather and articulate requirements to offer to those engaged in technical revision of the protocols and best common practices related to the operation of DNS servers.
2. Communicate on matters relating to the administration of the Root Zone with those who have direct responsibility for that administration. These matters include the processes and procedures for the production of the Root Zone File.
3. Engage in ongoing threat assessment and risk analysis of the Root Server System and recommend any necessary audit activity to assess the current status of root servers and the root zone.
4. Respond to requests for information or opinions from the ICANN Board of Directors.
5. Report periodically to the Board on its activities.
6. Make policy recommendations to the ICANN community and Board.

b. The RSSAC shall be led by two co-chairs. The RSSAC's chairs and members shall be appointed by the Board.

1. RSSAC membership appointment shall be for a three-year term, commencing on 1 January and ending the second year thereafter on 31 December. Members may be re-appointed, and there are no limits to the number of terms the members may serve. The RSSAC chairs shall provide recommendations to the Board regarding appointments to the RSSAC. If the board declines to appoint a person nominated by the RSSAC then it will provide the rationale for its decision. The RSSAC chairs shall stagger appointment recommendations so that approximately one-third (1/3) of the membership of the RSSAC is considered for appointment or re-appointment each year. The Board shall also have to power to remove RSSAC appointees as recommended by or in consultation with the RSSAC. (Note: The first term ~~The first full term~~ under this paragraph shall commence on 1 July 2013 and end on 31 December 2015, and shall be considered a full term for all

purposes. All other full terms under this paragraph shall begin on 1 January of the corresponding year. ~~January 2013 and end on 31 December 2015.~~

Prior to 1- ~~January 2011~~July 2013, the RSSAC shall be comprised as stated in the Bylaws as amended 16 March -2012, and the RSSAC chairs shall recommend the re-appointment of all current RSSAC members to full or partial terms as appropriate to implement the provisions of this paragraph.)

2. The RSSAC shall recommend the appointment of the chairs to the board following a nomination process that it devises and documents.

c. The RSSAC shall annually appoint a non-voting liaison to the ICANN Board according to Section 9 of Article VI.

**2013-04-11-01d-Board Reference Materials-Attachment  
A-Summary of New Const Applicant Phase.doc**

## Process for Recognition of New GNSO Constituencies: Application Phase

In June 2011, the ICANN Board adopted a resolution to institute a multi-step process that a prospective new Constituency would follow to become recognized as a member of a GNSO Stakeholder Group.

The process was designed to accomplish four goals:

- 1) Optimize the considerable time and effort required to form, organize, and propose a new GNSO Constituency by prescribing a streamlined sequence of steps and associated evaluation criteria that are objective, fair, and transparent - with ample opportunity for community input;
- 2) Delegate more authority to each GNSO Stakeholder Group in evaluating new Constituency proposals while maintaining the Board's oversight role;
- 3) Manage the entire process to a flexible, but specific and limited timeframe; and
- 4) Provide a partial set of criteria for use during the periodic review of the GNSO.

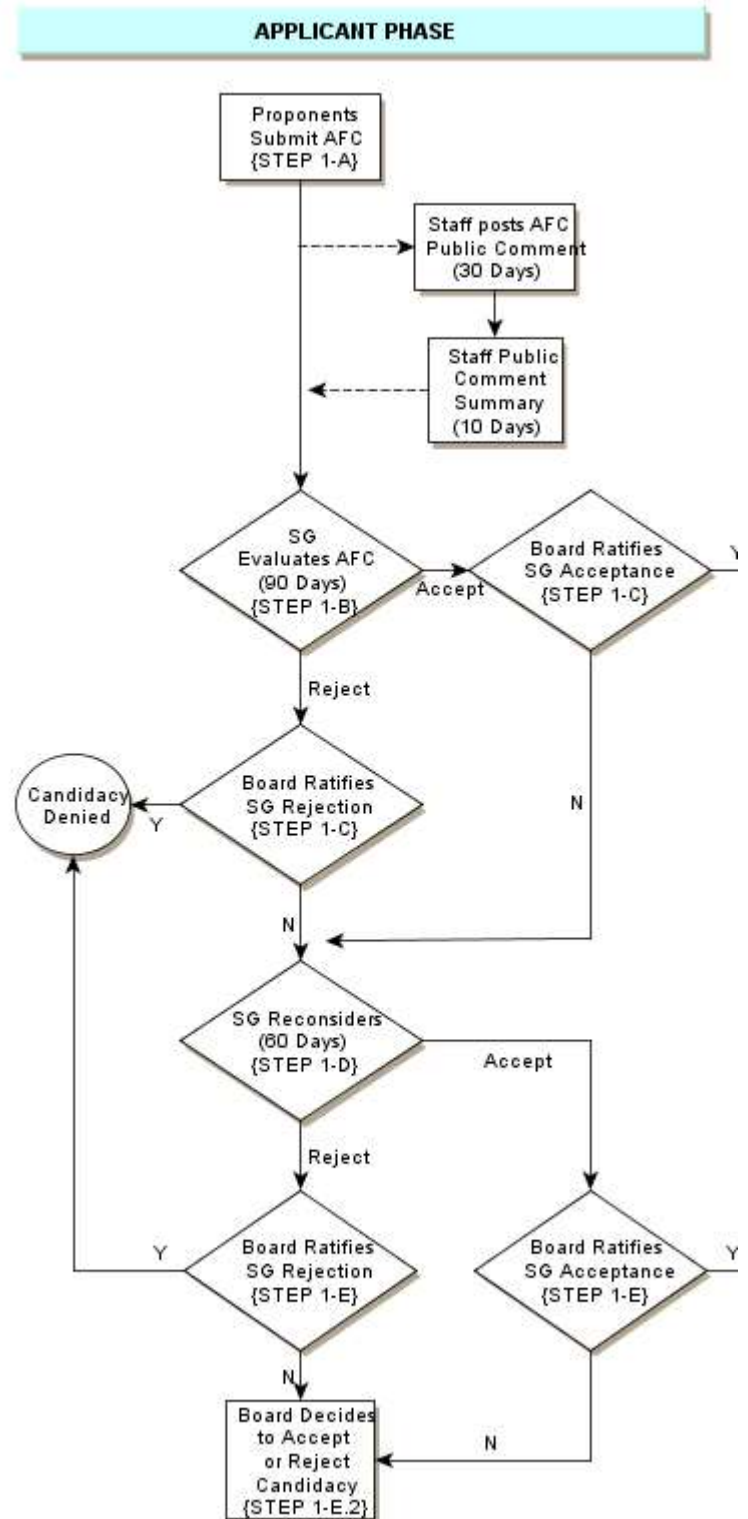
Shown to the right is a flowchart of just the **Applicant** phase. The complete process description, forms, and pictorials can be viewed at: <http://gns0.icann.org/en/about/form-new-constituency.htm>.

This portion of the process illustrates that, upon receipt of an Application for Candidacy (AFC) that has also completed a Public Comment process, a Stakeholder Group (SG) then evaluates (90 days) the prospective Constituency's request and either accepts or rejects its applicability and provides rationale.

The Board then considers the SG's decision and either ratifies it or provides reasons why the SG should reconsider its position.

If the SG accepts an application and the Board ratifies it (at any stage), the prospect moves immediately into the **Candidate** phase (not depicted).

In the event that a SG rejects an application and the Board ratifies that decision, the applicant may remedy any deficiencies and, at its discretion, reapply for consideration without prejudice.



**2013-04-11-01d-Board Reference Materials-Attachment  
B-Activity Contacts With PIA-CC.docx**



## **Contacts With PIA/CC Proponents Prior to Board Review of NCSG Decision**

There has been interest in development of a Public Internet Access/Cyber Café for some time. The first contact between the Cyber Café Association of India (CCAOI) and ICANN took place in early September 2009.

Since that time ICANN Staff, community members and the PIA/CC proponents at CCAOI have conducted numerous email discussions, telephone conversations and face-to-face discussions to explore the best place to welcome the cyber café interests. It is hoped an appropriate home can be found for the cyber café interests.

### **Activity Summary and Process Context (September 2009 – January 2013)**

(list of email exchanges and meeting not exhaustive):

- ICANN/proponents contacts *prior* to formal application submission –at least 35 emails, 3 teleconferences and several face-to-face discussions.
- ICANN/proponents contacts *since* formal application submission – at least 10 emails

#### September 2009:

First communication from CCAOI to ICANN Directors

#### October 2009:

ICANN Public Meeting in Seoul - CCAOI President and ICANN CEO meet  
Three emails

#### November 2009:

Six emails  
One teleconference

#### January 2010:

2 emails

#### February 2010:

7 emails  
1 teleconference

#### March 2010:

5 emails  
CCAOI President at ICANN Public Meeting in Nairobi  
\*CCAOI submits formal Notice of Intent to File

CCAOI discussions with BC and ISPCPC members

April 2010:

3 emails  
1 teleconference

June 2010

1 email

July 2010:

1 email

December 2010:

CCAOI President addresses GNSO Council at ICANN Public Meeting in Cartagena  
Several discussions with NCSG and BC members in Cartagena  
3 emails

January 2011:

Email introduction – CCAOI and NCSG Chair  
1 email

February 2011 –April 2011:

Public Comment Forum on New GNSO Constituency Recognition Process

June 2011:

ICANN Board approves New GNSO Constituency Recognition Process  
CCAOI Director attends ICANN Public Meeting in Singapore

October 2011:

CCAOI Director attends ICANN Public Meeting in Dakar  
CCAOI Director meets with Staff  
3 emails

June 2012:

CCAOI President attends ICANN Public Meeting in Prague

August 2012:

CCAOI submits Application For Candidacy (AFC)

SIC Chair alerted

September 2012:

4 emails

October 2012:

2 emails

Board and NCSG alerted to application

AFC supplement produced at request of CCAOI – 3 October see -

<http://gnso.icann.org/en/about/constituencies/afc-supplement-ccaoi-piacc-10oct12-en.pdf>

Formal acknowledgement of application and notification to CCAOI, SIC and NCSG – 10 October

Public Comment Forum opened - <http://www.icann.org/en/news/public-comment/afc-ccaoi-piacc-10oct12-en.htm>

December 2012:

Public Comment Forum closed – 17 December

Staff produced Report of Public Comments – 20 December – see

<http://www.icann.org/en/news/public-comment/report-comments-afc-ccaoi-piacc-20dec12-en.pdf>

NCSG transmits prelim decision to PIA/CC proponents and asks for feedback – 24 December

January 2013:

CCAOI replies to NCSG Chair – 5 January

NCSG notifies CCAOI and SIC Chair of decision – 10 January

# # #

# **2013-04-11-02a-Board Reference Materials-IDN-Variant-TLD-Program.doc**

## REFERENCE MATERIALS - BOARD PAPER NO. 2013-04-11-2a

**TITLE: IDN Variant TLD Root LGR Procedure and User Experience Study Recommendations**

### **BACKGROUND:**

A variant TLD can be thought of as a TLD that has a relationship with another TLD, in which the TLDs only differ in one or more characters (Unicode code points) and for each set of characters in the same position in each TLD, the users of the related writing system consider them exchangeable. For example, a character in traditional Chinese commonly has an equivalent simplified Chinese character.

In order to maintain a secure and stable DNS it is important that no IDN Variant TLDs be delegated until appropriate solutions are deployed as directed by [Board resolution on 25 September 2010](#).

The IDN Variant TLD Issues Project was established by [Board resolution on 10 December 2010](#) to identify the issues related to the delegation and handling of IDN Variant TLDs. It later evolved to become the IDN Variant TLD Program tasked to develop solutions and define necessary processes that must be in place to enable IDN variant TLDs delegation. The Program is comprised of four phases as follows.

Phase 1 – [Script Case studies](#) (April 2011 – Oct 2011): ICANN conducted six script case studies: Arabic, Chinese (Han), Cyrillic, Devanagari, Greek, and Latin to investigate issues relevant to individual scripts that need to be resolved to facilitate a good and safe user experience for IDN variant TLDs. Case studies teams were composed of volunteers from each of the communities, aided by ICANN staff and expert consultants.

Phase 2 – [Integrated Issues Report](#) (Nov 2011 – Feb 2012): Experts from the six case study teams and expert consultants advised ICANN in completing the Integrated Issues Report: a common framework that summarizes and categorizes various issues in identifying and managing IDN variant TLDs in the DNS root zone and provide recommendations to identify potential solutions. In collaboration with the BV-WG, the team concluded that [neither whole-string variants nor mirroring variants were considered as feasible options](#) per the findings of the Integrated Issues Report.

Phase 3 (current) – consisted of three projects (Feb 2012 – March 2013):

Project 1 – [Label Generation Rules \(LGR\) Tool](#) is developing a standard tool for listing allowed and variant code points for a domain name registry. Work on Project 1 will continue into the next phase.

Project 2.1 – [Procedure to Develop and Maintain the Label Generation Rules for the Root Zone in Respect of IDNA Labels](#) (March) developed the procedure to be used to populate and maintain the set of allowed Unicode characters (code points) in the root and related character variants in regards to IDN TLDs. Also defines the target dispositions for derived variant strings (allocatable or blocked). A summary of the Procedure can found in Exhibit A.

Project 6 – [User Experience Implications of Active Variant TLDs](#) (March) conducted a study focused on: understanding implications, examining potential challenges, and proposing recommendations for satisfactory, reliable and predictable user experience when dealing with IDN variant TLDs. One of the most important outputs will be the set of recommendations that would translate into contract provisions. A summary of the Report can found in Exhibit B.

Phase 4 (last and upcoming) – consists of three projects:

Project 2.2 – Setup the Integration panel and materials for the Generation panels in preparation for the future population of the Label Generation Rules for the Root Zone in Respect of IDNA Labels (the Root LGR). Population of the Root LGR (through the panels) to be done as part of the operations work since it is going to be an ongoing effort.

Project 7 – Update the new gTLD and IDN ccTLD programs to account for variants in general and particularly the Root LGR and the User Experience Study recommendations.

Project 8 – Update ICANN/IANA processes and systems to implement the changes specified in the new gTLD and IDN ccTLD Programs to support IDN variant TLDs.

IDN Variant TLDs could be delegated only after phase-4 work has finalized and the first version of the Root LGR has been published. Initial planning work suggests that IDN variant TLDs Delegation could be requested starting the first half of 2014.

The IDN Variant TLD Program finalized its third phase of work by publishing the "[Procedure to Develop and Maintain the Label Generation Rules for the Root Zone in Respect of IDNA Labels](#)" and the Report on "[User Experience Implications of Active Variant TLDs](#)". Both documents represent a step forward in a future secure and stable delegation of IDN variant TLDs.

#### **DISCUSSION OF ISSUES:**

There is a long-standing interest from some IDN user communities to deploy IDN variant TLDs (e.g., Chinese communities). However, in order to enable a secure and stable deployment a few key elements are needed first.

The Root LGR will enable an improved and inclusive approach to defining what code points will be allowed in the root. That determination will also be done before an application is made, i.e., there will be a list of the allowed code points, as it is the standard practices in registries that allow IDN registrations. The decision will involve the affected/interested communities and the due technical and linguistic expertise to guide the process.

The Root LRG will identify the code point variants (if any) of those allowed code points. Therefore, the identification of IDN variant TLD will be a deterministic approach not subject to arguments between the applicant and ICANN at application time.

The Root LGR will also identify the allowed disposition for such variants, i.e., whether a resulting IDN variant TLD can or cannot be made active in the DNS. For example, there are cases of variants that do not make sense from a linguistic (or user) perspective; however, they could be a security thread if left available in the pool of potential TLDs. Blocking or withholding such strings eliminates the security thread.

Although, variants have been in place in the DNS for some time, there are different approaches to implementation. Each approach has its advantages and disadvantages. The User Experience Study analysed the options and with input from the community arrive at a series of recommendations for ICANN, registries, and registrars on a way to enable a good user experience when deploying IDN variant TLDs.

The Recommendations will have to be implemented and that is the subject of one of the project of the fourth and last phase of the Program. The Recommendations will likely translate into contractual provisions for registries and/or registrars that implement IDN Variant TLDs. But there is also the option to implement some of them in the IDN implementation guidelines to simply recommend the best way forward to the actors involved.

The Recommendations also touch the subject of evaluating whether a TLD applicant is ready to deploy IDN variant TLDs. Therefore, some of the recommendations would likely impact the evaluation procedures in the gTLD Applicant Guidebook and the IDN ccTLD Process.

Updating all of the affected documents will have to follow the already established procedures respectively.

#### **KEY STAKEHOLDERS AND POSITIONS:**

Interested IDN TLD applicants, particularly from some user community like Chinese IDNs are likely to continue asking for expeditious deployment of IDN variant TLDs, especially in light of the prioritization of IDN gTLD applications.

Some community members might question the need for IDN variant TLDs and the security of IDN TLDs.



## **CONSULTATIONS UNDERTAKEN/RESULTS:**

Both the Root LGR Procedure and the User Experience Study underwent wide public input through direct community input and two rounds of formal public comment processes.

Community input highlighted some areas for improvement on both documents. Staff took steps to make improvements to the Procedure and the Report in order to address the potential issues.

After the second round of public comment, both documents appear solid.

## **POTENTIAL OBJECTIONS AND PROPOSED RESPONSES:**

Potential objection: Expedite the deployment of IDN variant TLDs. Proposed response: ICANN continues working to ensure a secure and stable delegation of IDN variant TLDs once the IDN Variant TLD Program has finished its work, which is expected by June 2014. The plan is being followed as indicated by the [Board resolution on 25 September 2010](#) and the [IDN ccTLD Fast Track Process](#). ICANN is working on accelerating the last phase of the IDN Variant TLD Program to be able to provide solutions as fast as possible without compromising the security and stability of the DNS.

Potential objection: IDN TLDs are risky and should not be deployed. Proposed response: IDNs have been a reality for the last ten years and IDN TLDs have been in the root since 2010. ICANN's work on IDN TLDs during this time included updating processes to account for risks uncovered during the work of the IDN Variant TLD Program. Although, some risks cannot be completely removed, their probability of happening has been substantially reduced. An independent expert analysis requested by ICANN determined that the risks in question had already been mitigated as far as possible, given the constraints.

## RECOMMENDATION:

In order to enable a future delegation of IDN variant TLDs it is recommended to adopt the "Procedure to Develop and Maintain the Label Generation Rules for the Root Zone in Respect of IDNA Labels" to start working on populating the Label Generation Rules for the Root Zone in Respect of IDNA Labels. It is also recommended to update the gTLD Applicant Guidebook and IDN ccTLD Process to incorporate the Label Generation Rules for the Root Zone in Respect of IDNA Labels to be used in the ccTLD and gTLD evaluation processes. Finally, in order to enable a good user experience with IDN Variant TLDs, it is recommended to implement the recommendations from the Report on User Experience Implications of Active Variant TLDs with any input and guidance that interested Supporting Organizations and Advisory Committees may have.

### List of Exhibits:

| Exhibit | Title                          | Attachment file   |
|---------|--------------------------------|---|
| A       | Root LGR Procedure Summary     | IDN-Variant-TLD-Program-Exhibit-A-Root-LGR-Procedure-Summary-06apr13.docx     |
| B       | User Experience Report Summary | IDN-Variant-TLD-Program-Exhibit-B-User-Experience-Report-Summary-06apr13.docx |

### Signature Block:

Submitted by: Francisco Arias on behalf of the IDN Variant TLD Program  
Position: gTLD Registry Technical Liaison  
Date Noted: 1 April 2013  
Email: [francisco.arias@icann.org](mailto:francisco.arias@icann.org)

**2013-04-11-02a-Board Reference Materials-Exhibit A-  
Root-LGR-Procedure-Summary.docx**

# Summary of the Procedure to Develop and Maintain the Label Generation Rules for the Root Zone in Respect of IDNA Labels

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The following provides a summary of the Procedure to Develop and Maintain the Label Generation Rules for the Root Zone in Respect of IDNA Labels. The Procedure can be found at <http://www.icann.org/en/resources/idn/variant-tlds/lgr-procedure-20mar13-en.pdf>.

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

For DNS labels to work as useful mnemonics labels have to be in familiar and recognized writing system. However, that does not mean that every word may be a valid label, nor will every sequence of Unicode code points (even those considered protocol valid under IDNA 208) work for certain writing systems.

Adding IDNA labels therefore requires rules, called Label Generation Rules or LGR for short. This overview is of the procedure to be used to generate the LGR for IDN Labels in the Root Zone.

Existing Root labels will not be affected (they are grandfathered).

## Variant Labels

For some languages, different code points can mean the same thing, as for example in the case of simplified and traditional Chinese ideographs. It is thus necessary to have a means to prevent the allocation of IDN variants of the same label to competing applicants, while it may be desirable to allow allocation of some IDN variant to the applicant for the original label.

The LGR defines the IDN variants for each label and what their possible disposition may be.

## Two Stage Process

The process for creating the LGR has two stages. The first stage of the process consists of a number of Generation panels made up of volunteers and experts with interest and expertise in a given writing system. These panels generate LGR proposals for their script and language communities. All such proposals are then reviewed and integrated into a common Root LGR by an Integration panel composed of experts in Unicode, DNS, and general script issues.

The two sets of panels are independent and have separate membership, as well as a different focus.

Each Generation panel develops the set of rules for a particular script or language environment. In that process they may be assisted by additional ICANN-paid experts acting as advisers. They will most naturally advocate for solutions based on the requirements of the community they represent.

The Integration panel on the other hand is charged with creating a unified Root Zone LGR, while taking into account the need for a secure, stable and reliable DNS Root Zone.

## Principles

The action of the panels is Constrained a set of Principles gleaned from the IAB with Conservatism as overarching principle among them.

- Longevity
- Least Astonishment
- Contextual Safety
- Inclusion
- Simplicity
- Predictability
- Stability
- Letter
- Conservatism

In accepting additions to the Root LGR, consensus between Generation Panels and Integration panel, as well as consensus among the experts of the Integration panel is required. This assures that, in the light of the principles listed above, only non-controversial additions are made to the Root.

## LGR process output

The LGR created by the process described here will consist of these elements

- Overall repertoire
- Sub-repertoires and tags identifying the latter
- Whole label evaluation rules
- Variants (code point mapping)
- Disposition for variant labels

IDN labels will be constrained to be wholly within a script sub-repertoire. They are further required to be structurally well formed, something that is crucial for reliable presentation of labels in complex scripts. This requires evaluating the label as a whole, a process also applied to any variants.

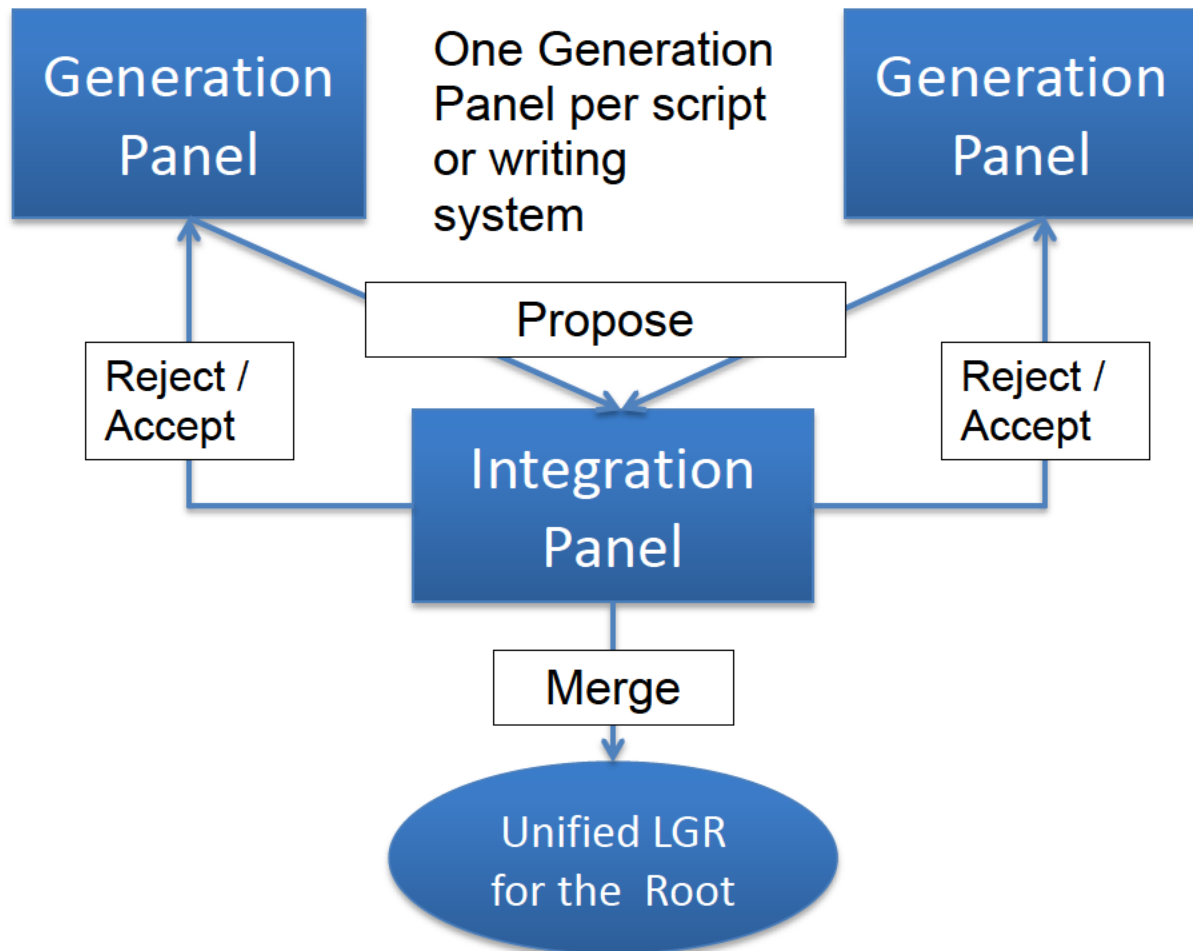
Labels in some scripts may have variants, which may be Blocked or Allocated. However, not all allocatable variants should necessarily ever be activated.

One important design point is that the application of LGR can be automated, both in verifying hat a label is permissible (fits the repertoire and is well formed) but also in determining all applicable variants and their disposition. Collisions between applied for labels and their variants with existing labels and their variants can then be determined mechanically.

## Initial LGR for the Root

In an abstract ideal it would be possible to consider the needs of each and every language in full, before establishing the LGR for the Root Zone. However, the number of languages and scripts is not small, and not every last one of them has been encoded in Unicode.

Because this ideal case is not feasible it is anticipated instead that Integration Panel may deliver a version of the root LGR if/when it has strong reason to believe there will be no overlap between the code point range it is delivering and the work by upcoming Generation Panels.



**2013-04-11-02a-Board Reference Materials-Exhibit B-  
User-Experience-Report-Summary.docx**

## User Experience Implications of Active Variant TLDs - Summary

The following provides a summary of the Report on User Experience Implications of Active Variant TLDs. The Report can be found at <<http://www.icann.org/en/resources/idn/variant-tlds/active-ux-21mar13-en.pdf>>.

As part of the process of implementing internationalized top-level domains or IDN TLDs, ICANN is undertaking several projects to determine the requirements for activating their *variants*. This report examines potential challenges from a user experience perspective when variants of IDN TLDs are activated. The definition and activation of variants are determined by linguistic and technical communities who may have differing perspectives. The former primarily concerned with end users and consequently advocates a maximal variant label set to enable diverse linguistic expression and easier accessibility, and latter primarily concerned with the security and stability of the Domain Name System (DNS) and therefore stipulates the minimal number of variant labels (if any) be added to the root.

To find the right balance between these two perspectives, within the context of usability, this report proposes seven guiding principles for activating the variants of IDN TLDs. They include: (i) *Minimality* (variants must introduce only the least changes necessary in the DNS), (ii) *Security* (variants must minimize the risks introduced by IDNs), (iii) *Predictability* (variants should behave and function as users expect in their language and script environments), (iv) *Equivalency* (variants must be managed by the same entity and direct users to related content), (v) *Consistency* (variants should behave similarly within and across TLDs and supporting technology), (vi) *Manageability* (variants should be straightforward to visualize and administer with supporting technology), and (vii) *Ease of Use* (variants should be easy to use for new and existing Internet users). Further, to learn from existing deployments of IDN variants, this report summarizes and compares how ccTLD registries are already planning or offering variants for Arabic, Chinese, Devanagari and Latin scripts.

Active variants of TLDs may introduce challenges to various user communities, including (i) *End Users*, (ii) *Registrants, Registrars and Registries*, and (iii) *Technical Community*. These challenges are categorized as: Challenges with their use, for example, user cannot find the complete set of variants for a primary label; variants not intuitive; etc.; Challenges in their registration management, for example, management across IDN TLDs inconsistent, registration for SLDs across TLDs inconsistent; etc.; and, Challenges in their configuration and diagnostics, for example, cannot associate variants for configuration, log and history searching does not match variants, etc. To address these challenges the report proposes the following recommendations.

### **Recommendations to ICANN**

1. ICANN must implement a well defined and conservative variant TLD allocation process
2. ICANN must maintain an LGR repository for the root zone and IDN TLDs
3. ICANN must develop minimal, simple and consistent LGR for the root zone
4. ICANN must develop a minimal, simple and consistent life cycle for the variant TLD sets
5. ICANN must define guidelines to evaluate the readiness of the registry to manage variants
6. ICANN should require registries to apply the relevant subset of the root zone LGR and state life cycle for variants across second-level domain labels. Deviations should be justified
7. ICANN should create educational materials on the impact of variants for user communities



8. ICANN must require registrar to support variants across its registration platform
9. ICANN should develop registration data requirements for variants at root and other levels
10. ICANN must convene experts to determine and update existing dispute resolution processes
11. ICANN must define technical requirements and engage with standards organizations, such as the IETF, to determine how IDN variants should be consistently implemented

#### **Recommendations to a Registry that Offers IDNs for Scripts that have Variants**

1. Registry should not register any second-level variants unless request has met requirements
2. Registry must make its updated LGR available to ICANN and the community
3. Registry should apply the root LGR across lower-level domains. Deviations be justified
4. Registry should implement state life cycle by ICANN for the second-level variants
5. Registry should create educational materials on the impacts of variants for user communities
6. Registry should require registrars to support IDN variants across their registration platforms

#### **Recommendations to a Registrar that Supports the Registration of Variants**

1. Registrar must update its practice to address requirements for the registration of IDN variants
2. Registrar should extend linguistic and technical support of IDN variants for registrants
3. Registrar must support IDN variants across their registration platforms
4. Registrar must support registry policies for managing registration data of IDN variants
5. Registrar may also update any related services that are impacted by variants

#### **Recommendations to the Technical Community**

1. Developers of software tools for the technical community should consider enhancing their software to support the administration and management of variants
2. Software intended for Internet end users—such as web browsers, email clients, and operating systems—should support variants to ensure a positive user experience
3. Developers should share best practices and emerging standards in terminology and functionality

These recommendations suggest following a script-level LGR definition process to withhold the largest confusable set against any label to help ensure the security of end users. However, it further proposes a minimal activation strategy, activating one label (with minimal variants necessary). The applicant has to justify the necessity of activating each variant through an explicit application process at least as conservative as required for any TLD label application. Moreover, mechanisms are needed to inform the stakeholders on the impact of activating variant TLDs and to develop best practices. This includes using the same LGR across all levels (with minimal necessary additions) and activation life cycle across all TLDs for a consistent and predictable end user experience.

The proliferation of variants across scripts has far-reaching implications on policy, technology, and practice. To help ensure that variants are implemented in a way that is both secure and user friendly, it is important that the stakeholders address these recommendations and continue to work together in the fast-evolving IDN variant ecosystem.