

29 January 2018

RE: Employing Root Zone Label Generation Rules for IDN TLDs

SO/AC Chairs

Dear SO/AC Chairs,

Internationalized Domain Names (IDN) Top-Level Domains (TLDs) have been a priority for the ICANN Board for several years, based on input from the community. As the variant labels of IDN TLDs are an important component for some script communities, the ICANN Board is asking the community to formulate a study group to investigate employing Root Zone Label Generation Rules (RZ-LGR) for defining the TLDs, as per the details below, and share its findings with the ICANN Board.

In 2010, the ICANN Board requested the ICANN organization and the community to develop workable approaches for variant labels across scripts, as their concept was not well understood at the time IDN TLDs were being introduced. Following that request, the community undertook case studies for six scripts and, based on the analyses, the community noted in the Integrated Issues Report published in 2012 that: 1) there was no acceptable definition of what may constitute a variant relationship between IDN TLD labels; and 2) there was no variant management mechanism defined.

In 2013, the ICANN organization and the community worked further to create the Procedure to Develop and Maintain the Label Generation Rules for the Root Zone in Respect of IDNA Labels in order to address the first point of establishing a cohesive definition of variant TLD labels. Based on this work, in 2013 the ICANN Board endorsed this procedure for developing the Root Zone Label Generation Rules (RZ-LGR) and asked the ICANN organization and the community to implement this procedure.

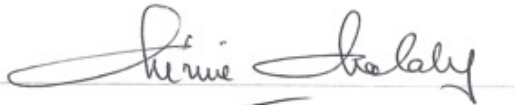
The work on developing RZ-LGR started soon afterwards, and has been underway since then. The second version of the RZ-LGR supporting multiple scripts was recently released in August 2017, with many of the remaining script communities now in the process of finalizing their work. The RZ-LGR imposes additional technical restrictions for IDN TLDs, expected by the IDNA2008 standard and recommended by the Security and Stability Advisory Committee (SSAC), as per the details in Annex A.

With the availability of RZ-LGR, the ICANN Board is now asking the ICANN community to form a new study group to investigate any issues in applying the RZ-LGR to determine valid IDN TLDs and their variant labels along with their dispositions. The study will be undertaken to address the first point raised in the Integrated Issues Report, as discussed above. The study group should be familiar with the RZ-LGR work and should be comprised of subject matter experts on the technical aspects of IDNs from the Supporting Organizations, the Advisory

Committees and other stakeholder organizations, like Internet Architecture Board (IAB). The ICANN organization is being asked to announce and support this new study group, which is requested to publish its findings in a report and share it with the ICANN Board. The ICANN Board will then consider the report before determining the next steps.

Regards,

Cherine Chalaby



Chairman, ICANN Board of Directors

Annex A: Expectation of IDNA2008 to Define Additional Restrictions by DNS Zone Administrators and SSAC Advisory for Using Single Source for Root Zone

It is noted in [RFC 5890](#)[1] that “DNS zone administrators may impose restrictions, beyond those imposed by DNS or Internationalized Domain Names in Applications (IDNA), on the characters or strings that may be registered as labels in their zones. Because of the diversity of characters that can be used in a U-label and the confusion they might cause, such restrictions are mandatory for IDN registries and zones even though the particular restrictions are not part of these specifications.” It is further explained that “DNS zone administrators may impose restrictions ... that try to minimize characters that have similar appearance or similar interpretations.” It is re-iterated in [RFC 5891](#)[2] that “Registries at all levels of the DNS, ... [including] the top level, are expected to establish policies about label registrations,” specifically pointing to the rationale in [RFC 5894](#)[3] that “registries should develop and apply additional restrictions as needed to reduce confusion and other problems ... For many scripts, the use of variant techniques ... may be helpful in reducing problems that might be perceived by users. ... In general, users will benefit if registries only permit characters from scripts that are well-understood by the registry or its advisers,” suggesting some cases, e.g. “reduce opportunities for confusion by constructing policies that disallow characters used in historic writing systems or characters whose use is restricted to specialized, highly technical contexts”. Additional guiding principles are defined in [RFC 6912](#)[4]. Hence, the work on restricting code points and defining their variants for a zone is in line with and expected by IDNA2008. As ICANN, through IANA function, is responsible for management of the DNS Root Zone, it implies that ICANN also needs to specify relevant rules for determining the valid labels and their variant labels for the Root Zone. These guidelines are part of the RZ-LGR Procedure developed by the ICANN community and is realized through the RZ-LGR.

In [SAC 060](#)[5] advisory, SSAC explains that “root zone is necessarily shared by everyone on the Internet, and needs a set of LGR that ensures minimal conflict,

minimal risk to all users (independent of the language or script they are using and independent of gTLD or ccTLD), and minimal potential for incompatible change over time.” It notes that, unlike the second level, “the root zone also lacks other contexts that can be used by a registry to restrict LGR for that particular TLD”. Due to difference in context for the second level, “sometimes different rules for the same script exist across TLDs.” However, this report cautions that, “[a]pplying such a model to the root zone would cause stability issues.” Therefore, SSAC clearly recommends that **“The root zone must use one and only one set of rules for the Root LGR procedure”** (emphasis from the source).

[1] Internationalized Domain Names for Applications (IDNA): Definitions and Document Framework

[2] Internationalized Domain Names in Applications (IDNA): Protocol

[3] Internationalized Domain Names for Applications (IDNA): Background, Explanation, and Rationale

[4] Principles for Unicode Code Point Inclusion in Labels in the DNS

[5] SSAC Comment on Examining the User Experience Implications of Active Variant TLDs Report