Scope of Study on Technical Use of Root-Zone Label Generation Ruleset

Purpose of this document

The Root Zone Label Generation Ruleset Study Group (RZ-LGR-SG) is using the following questions as a way to frame the technical discussion with respect to the use of the RZ-LGR. Some questions may have obvious answers, but other questions are not so obvious. There may be other relevant questions that SG may have missed. Therefore, the SG would like to ask the community for feedback to finalize the scope of the analysis.

Principles governing the work

The Study Group (SG) has agreed to follow the following principles while undertaking the technical study on utilizing the RZ-LGR:

1. **Recommendations must not go against the security and stability of the root zone.**
2. **Recommendations must follow the [LGR Procedure](https://www.icann.org/en/system/files/files/lgr-procedure-20mar13-en.pdf)**, because the Procedure has been developed by the community and adopted by the ICANN Board, and is the basis of the work by the different community based generation panels.
3. **Given multiple options, the recommendations should take the conservative approach,** as this is the first time RZ-LGR is being used to validate labels and determine their variant labels.

Scope of Work

1. **How should the RZ-LGR be used?** RZ-LGR has been designed to validate IDN labels[1] and calculate their variant labels. It is built by integrating LGR proposals from different script-based communities (e.g. Han, Arabic, Khmer, Latin, Cyrillic, etc.).
    a. How is the "use of RZ-LGR" defined?
        i. <u>Syntax validation</u> - To determine whether an applied-for string is valid/invalid based on the code point repertoire and whole-label evaluation rules of the RZ-LGR.
        ii. <u>Variant label calculation</u> - To calculate the variant labels of an input string, and corresponding disposition values (e.g. allocatable, blocked).
    b. How should the RZ-LGR be applied on a label?
        i. Determining string syntax validity depends using only the script proposals integrated.

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[1] https://www.icann.org/en/system/files/files/lgr-procedure-20mar13-en.pdf

        ii.   RZ-LGR needs to be used in its totality and not just by its parts, implying that scripts not integrated cannot be processed and labels in that script will be considered invalid.

    c.   Does the RZ-LGR define the upper limit as far as code point repertoire allowed in the root-zone?

    d.   Who are users of the RZ-LGR?

        i.   TLD or TLD variant label applicants.

        ii.   Others associated with TLD evaluation and delegation, including ICANN org, PTI/IANA, application evaluation panels.

        iii.   Others, e.g. end users (e.g. trademark holders, to engage in the objection process during application evaluation), application providers (such as browser developers to calculate variant labels).

    e.   Should RZ-LGR be used just for IDN TLD applications or for all TLD applications, including ASCII labels?

        i.   The SG believes this scope item is important in light of cross-script variants that may exist among related scripts, such as Latin, Cyrillic and Greek[2].

2. Should RZ-LGR-SG also consider if single character labels be allowed?

    a.   The SG will look into the *technical* aspects of single character labels. For this analysis, the SG will use resources such as SAC052[3].

3. In which part of current or future process should RZ-LGR be used and how?

    a.   gTLD

        i.   Use of RZ-LGR for current IDN gTLDs only for variant calculation (not for validation)

            1.   How to address variant TLD labels self-identified by the gTLD applicants?

            2.   How to address (any) current gTLD delegated which are variant labels based on RZ-LGR calculations?

        ii.   Use of RZ-LGR for future applications for TLD validation and variant calculations

    b.   ccTLD

        i.   Use of RZ-LGR for current IDN ccTLDs only for variant calculation (not for validation)

            1.   How to address variant TLD labels self-identified by the ccTLD applicants?

            2.   How to address (any) current ccTLD delegated which are variant labels based on RZ-LGR calculations?

        ii.   Use of RZ-LGR for future applications for TLD validation and variant calculations

4. Should RZ-LGR be applied to both gTLD and ccTLD application processes equally? Can policy work differently constrain the use of RZ-LGR downstream?

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[2] https://www.icann.org/en/system/files/files/msr-3-overview-15jan18-en.pdf
[3] https://www.icann.org/en/system/files/files/sac-052-en.pdf

5. **What considerations, if any, should be recommended for reserved labels at the top level?**
6. **Multiple scripts have been integrated but many scripts are still not integrated in RZ-LGR. When should RZ-LGR be ready to be used as part of the application process?**
7. **How should change in RZ-LGR be dealt with?**
    a. Changes in repertoire? Changes in variant sets? Changes in variant dispositions?
    b. What mechanisms should be in place to deal with stability of the root zone and the RZ-LGR in the context of such changes?
8. **How should IANA processes and records be updated to deal with RZ-LGR and its implications?**
    a. Delegation process
    b. WHOIS records
    c. Others?
9. **How should RZ-LGR be managed?**
    a. Who should maintain and update it?
    b. Where should it be published?
    c. Who should implement it for the use by the community?
10. **What are the possible variant states of a TLD label or its variant labels and their possible inter-state transitions?**
    a. Multiple states are referred to in various documents. What are the unique states and their definitions?
        i. Allocatable? Blocked? Allocated? Activated? Delegated? Withheld? Others?
    b. What are possible transition from one state to another state which are possible?
    c. Should there be any timing constraints on when such a state change may occur? Are there any technical challenges in (a)synchronized allocation and delegation of variant labels?
11. **Could all allocatable variant labels be allocated? Should fewer? What are the technical considerations for delegating variant labels at the top-level?**
12. **What, if any, should be the mechanisms available to members of the community to challenge RZ-LGR calculations? Should there be any consideration on the timing of the objection, e.g. in the middle of an application process?**
    a. For TLD applicants (any special consideration for TLD applicants?)
    b. For users in general (e.g. trademark holders)
    c. For ICANN org/IANA (e.g. determining valid labels, variants in application process context, reserved TLD labels)
    d. For Generation Panels
13. **What, if any, should be the remedies available to applicant to resolve objections to RZ-LGR calculations?**
14. **What should be the scope of DNS Stability Review after RZ-LGR is implemented in the TLD application process?**