



# IDN Program @ ICANN

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# Overview of Presentation

- IDNs at Top Level
  - IDN TLD Program
    - Label Generation Ruleset (LGR)
    - LGR Toolset
    - IDN Variant Implementation
  - IDN ccTLD Fast Track Process Implementation
- IDNs at Second Level for gTLDs
  - IDN Implementation Guidelines
  - IDN Tables
- Community Outreach and Involvement





# **IDN TLD Program**

# ASCII Domain Name Label

**www.cafe.com**



Third Level  
Domain

Second Level  
Domain

Top Level  
Domain (TLD)



## Forming ASCII Labels

### Use LDH

- Letters [a-z]
- Digits [0-9]
- Hyphen (LDH)

Label length = 63

Other constraints (e.g. on hyphen)

## Forming ASCII Labels

### Use only Letters

- Letters [a-z]

Label length = 63

# Internationalized Domain Name (IDN) Labels

ตัวอย่าง-ไทย



IDN Second  
Level  
Domain

IDN Top  
Level  
Domain



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Бел

الجزائر

huyj

中国

ಭಾರತ

한국

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## Syntax of IDN Labels

**Valid U-Label:** Unicode code points as constrained by IDNA2008

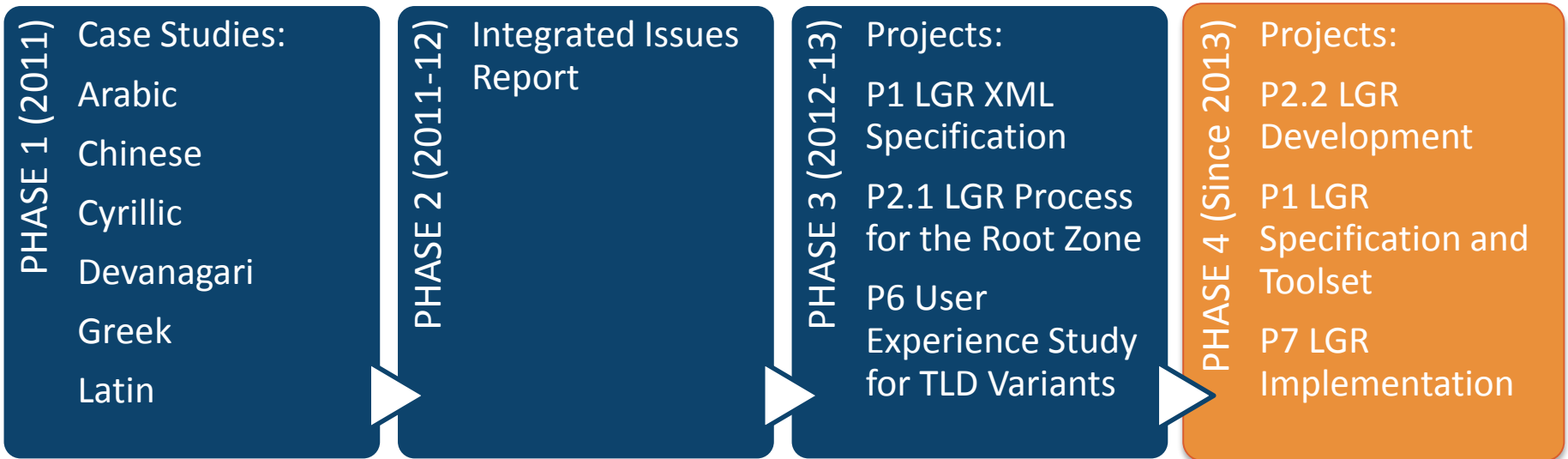
**Valid A-Label - “xn--”** followed by punycode of U-Label of length 59

## Syntax of IDN Labels

**Valid U-Label,** further constrained by **the “letter” principle** for TLDs

**Valid A-Label**

# IDN TLD Program



Community agreed to define a Label Generation Rules (LGR)

Reports and documentation of all completed projects available at:  
<https://www.icann.org/resources/pages/reports-2013-04-03-en>

# Label Generation Rules (LGR) for Root Zone

- ⦿ For the Root Zone, single “table” containing data for all scripts
  - ⦿ Must be conservative, consistent and secure
  - ⦿ Designed at script level
  
- ⦿ For each script or writing system, for the Root Zone:
  1. Which code points are valid for use?
  2. Are any of these code points variants of each other?
  3. Are there any additional constraints on the labels?

060	061	062	063	064	065	066	067	068	069	06A	06B	06C	06D	06E	06F	075	076	077	08A	08B	08C	08D	08E	08F
0 0600	ي 0610	ذ 0620	ذ 0630	- 0640	◊ 0650	◊ 0660	◊ 0670	ي 0680	ت 0690	ع 06A0	گ 06B0	ة 06C0	ي 06D0	◊ 06E0	◊ 06F0	◊ 0750	ي 0760	ت 0770	پ 08A0	◊	◊	◊	◊	◊ 08F0
1 0601	◊ 0611	ء 0621	ر 0631	ف 0641	◊ 0651	◊ 0661	◊ 0671	خ 0681	ر 0691	ه 06A1	گ 06B1	◊ 06C1	ي 06D1	◊ 06E1	◊ 06F1	◊ 0751	◊ 0761	ر 0771	◊	◊	◊	◊	◊	◊ 08F1
2 0602	◊ 0612	آ 0622	ز 0632	ق 0642	◊ 0652	◊ 0662	◊ 0672	خ 0682	◊ 0692	ب 06A2	گ 06B2	ة 06C2	◊ 06D2	◊ 06E2	◊ 06F2	◊ 0752	ک 0762	◊ 0772	ج 08A2	◊	◊	◊	◊	◊ 08F2
3 0603	◊ 0613	أ 0623	س 0633	ك 0643	◊ 0653	◊ 0663	◊ 0673	ج 0683	ر 0693	ب 06A3	گ 06B3	ة 06C3	◊ 06D3	◊ 06E3	◊ 06F3	◊ 0753	گ 0763	◊ 0773	ظ 08A3	◊	◊	◊	◊	◊ 08F3
4 0604	◊ 0614	ؤ 0624	ش 0634	ل 0644	◊ 0654	◊ 0664	◊ 0674	ج 0684	◊ 0694	ف 06A4	گ 06B4	◊ 06C4	◊ 06D4	◊ 06E4	◊ 06F4	◊ 0754	ک 0764	◊ 0774	ب 08A4	◊	◊	◊	◊ 08E4	◊ 08F4
5 ◊	◊ 0615	ا 0625	ص 0635	م 0645	◊ 0655	◊ 0665	◊ 0675	ا 0685	ر 0695	◊ 06A5	◊ 06B5	◊ 06C5	◊ 06D5	◊ 06E5	◊ 06F5	◊ 0755	◊ 0765	◊ 0775	ب 08A5	◊	◊	◊	◊ 08E5	◊ 08F5
6 ◊	◊ 0616	ئ 0626	ض 0636	ن 0646	◊ 0656	◊ 0666	◊ 0676	چ 0686	ر 0696	ق 06A6	◊ 06B6	◊ 06C6	◊ 06D6	◊ 06E6	◊ 06F6	◊ 0756	م 0766	◊ 0776	ب 08A6	◊	◊	◊	◊ 08E6	◊ 08F6
7 ◊	◊ 0617	ا 0627	ط 0637	ه 0647	◊ 0657	◊ 0667	◊ 0677	چ 0687	ر 0697	ف 06A7	◊ 06B7	◊ 06C7	◊ 06D7	◊ 06E7	◊ 06F7	◊ 0757	ن 0767	◊ 0777	ب 08A7	◊	◊	◊	◊ 08E7	◊ 08F7
8 ◊	◊ 0618	ب 0628	ظ 0638	و 0648	◊ 0658	◊ 0668	◊ 0678	ئ 0688	ر 0698	ق 06A8	◊ 06B8	◊ 06C8	◊ 06D8	◊ 06E8	◊ 06F8	◊ 0758	ن 0768	◊ 0778	ئ 08A8	◊	◊	◊	◊ 08E8	◊ 08F8
9 ◊	◊ 0619	ة 0629	ع 0639	ی 0649	◊ 0659	◊ 0669	◊ 0679	د 0689	ر 0699	ک 06A9	◊ 06B9	◊ 06C9	◊ 06D9	◊ 06E9	◊ 06F9	◊ 0759	◊ 0769	◊ 0779	ئ 08A9	◊	◊	◊	◊ 08E9	◊ 08F9
A ◊	◊ 061A	ت 062A	غ 063A	ي 064A	◊ 065A	◊ 066A	◊ 067A	د 068A	ب 069A	ک 06AA	◊ 06BA	◊ 06CA	◊ 06DA	◊ 06EA	◊ 06FA	◊ 075A	ل 076A	◊ 077A	◊ 08AA	◊	◊	◊	◊ 08EA	◊ 08FA
B ◊	◊ 061B	ث 062B	ک 063B	◊ 064B	◊ 065B	◊ 066B	◊ 067B	ب 068B	پ 069B	ک 06AB	◊ 06BB	◊ 06CB	◊ 06DB	◊ 06EB	◊ 06FB	◊ 075B	◊ 076B	◊ 077B	◊ 08AB	◊	◊	◊	◊ 08EB	◊ 08FB
C ◊	◊ 061C	ج 062C	ک 063C	◊ 064C	◊ 065C	◊ 066C	◊ 067C	ت 068C	ت 069C	ک 06AC	◊ 06BC	◊ 06CC	◊ 06DC	◊ 06EC	◊ 06FC	◊ 075C	◊ 076C	◊ 077C	◊ 08AC	◊	◊	◊	◊ 08EC	◊ 08FC
D ◊	◊	ح 062D	ئ 063D	◊ 064D	◊ 065D	◊ 066D	◊ 067D	د 068D	ی 069D	ک 06AD	◊ 06BD	◊ 06CD	◊ 06DD	◊ 06ED	◊ 06FD	◊ 075D	◊ 076D	◊ 077D	◊ 08AD	◊	◊	◊	◊ 08ED	◊ 08FD
E ◊	◊ 061E	خ 062E	ئ 063E	◊ 064E	◊ 065E	◊ 066E	◊ 067E	پ 068E	ث 069E	ک 06AE	◊ 06BE	◊ 06CE	◊ 06DE	◊ 06EE	◊ 06FE	◊ 075E	ج 076E	◊ 077E	◊ 08AE	◊	◊	◊	◊ 08EE	◊ 08FE
F ◊	◊ 061F	د 062F	ئ 063F	◊ 064F	◊ 065F	◊ 066F	◊ 067F	ت 068F	د 069F	ظ 06AF	گ 06BF	◊ 06CF	◊ 06DF	◊ 06EF	◊ 06FF	◊ 075F	چ 076F	◊ 077F	◊ 08AF	◊	◊	◊	◊ 08EF	◊ 08FF



# Label Generation Rules (LGR)

0632	ك	0652	0662	0672	0682	0692	06A2	06B2
0633	ك	0653	0663	0673	0683	0693	06A3	06B3
0634	ل	0654	0664	0674	0684	0694	06A4	06B4
0635	م	0655	0665	0675	0685	0695	06A5	06B5
0636	ن	0656	0666	0676	0686	0696	06A6	06B6
0637	ه	0657	0667	0677	0687	0697	06A7	06B7
0638	و	0658	0668	0678	0688	0698	06A8	06B8
0639	ي	0659	0669	0679	0689	0699	06A9	06B9
063A	ي	065A	066A	067A	068A	069A	06AA	06BA

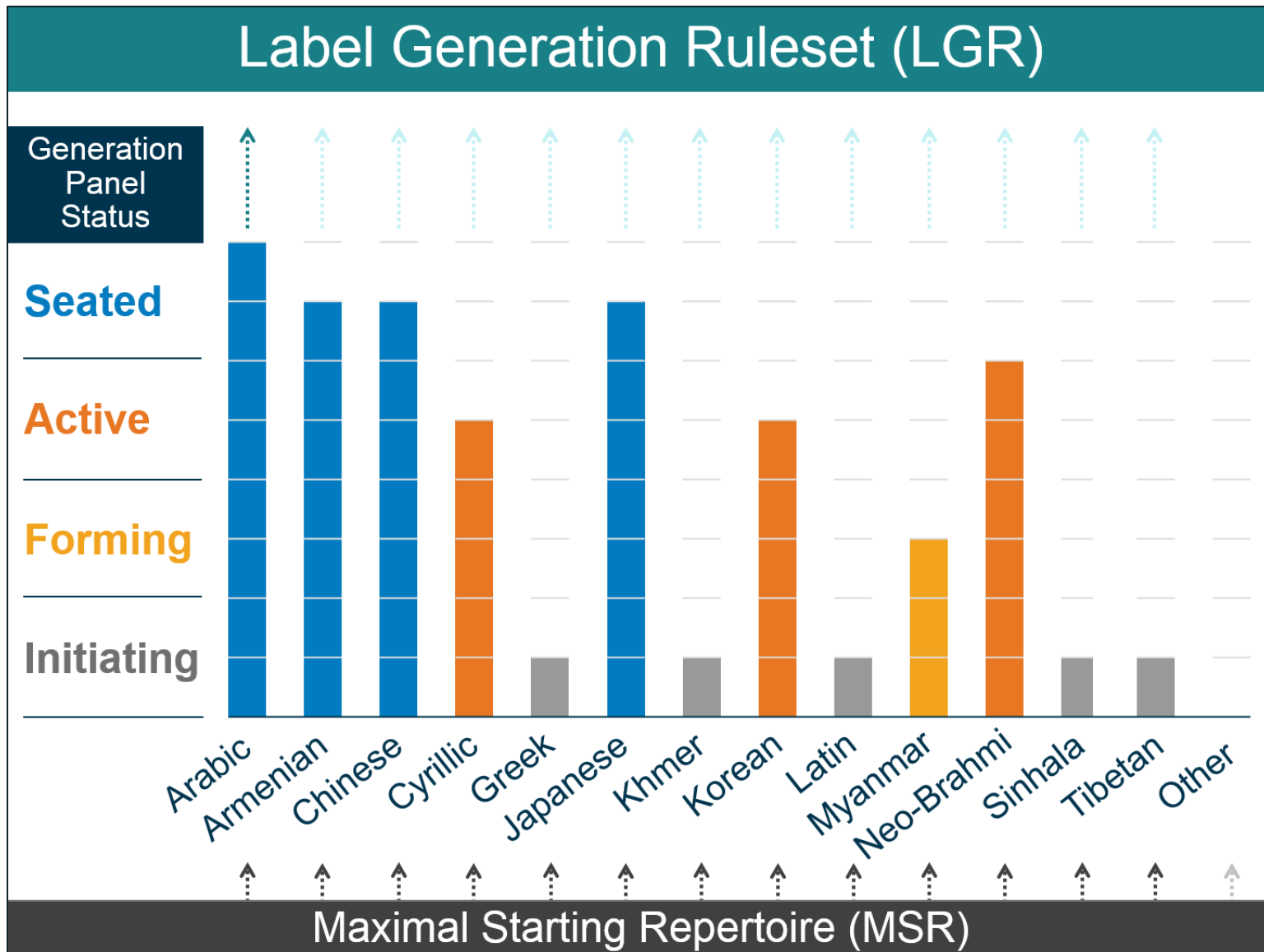
- Valid code points
- Variants code points

پاکستان  
پاکستان

- Label constraints
  - Cannot mix ك and ك in a label

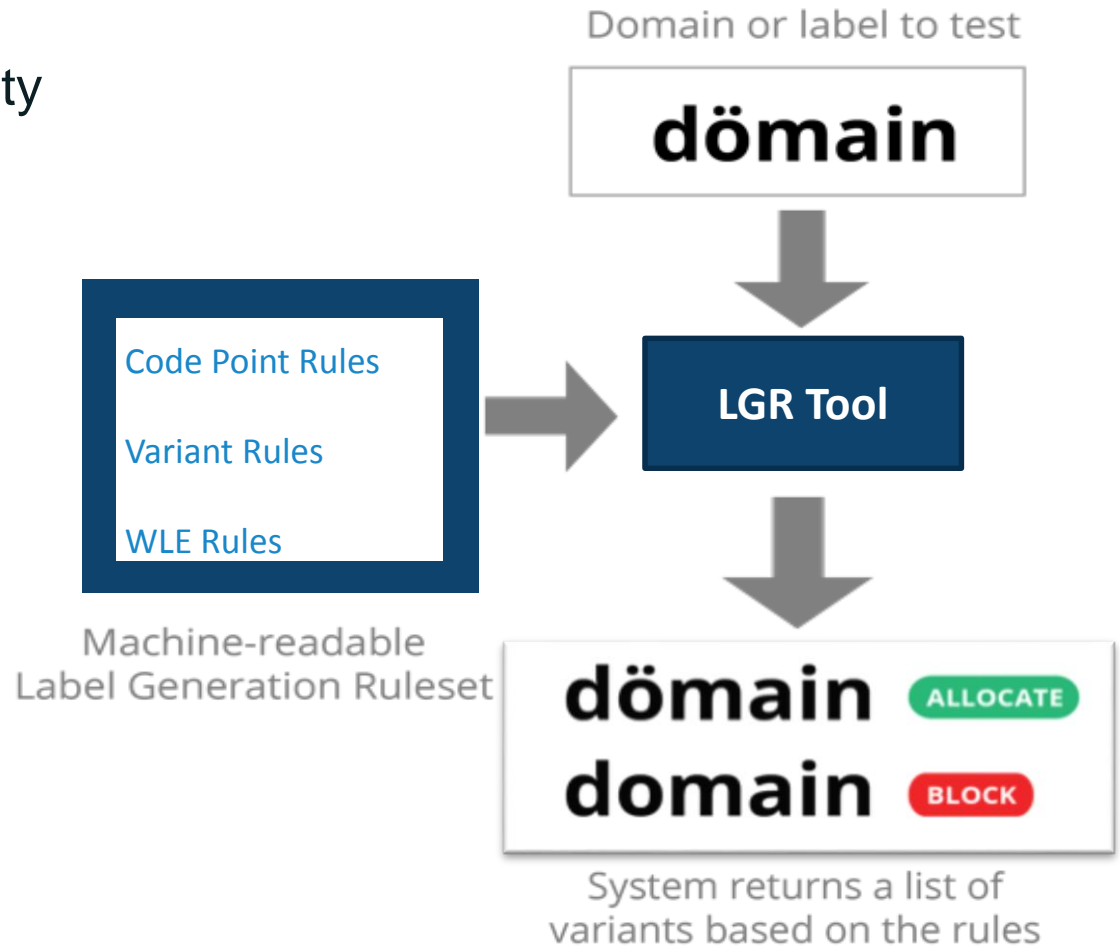
كلكتہ ✓  
كلكتہ ✓  
كلكتہ x  
كلكتہ x

# Root LGR by Generation and Integration Panels



# LGR Specification and Toolset

- LGR machine-readable specifications at <https://datatracker.ietf.org/doc/draft-davies-idntables>
- Toolset functional priority
  - Create LGR
  - Use LGR
  - Manage LGRs
- Open source

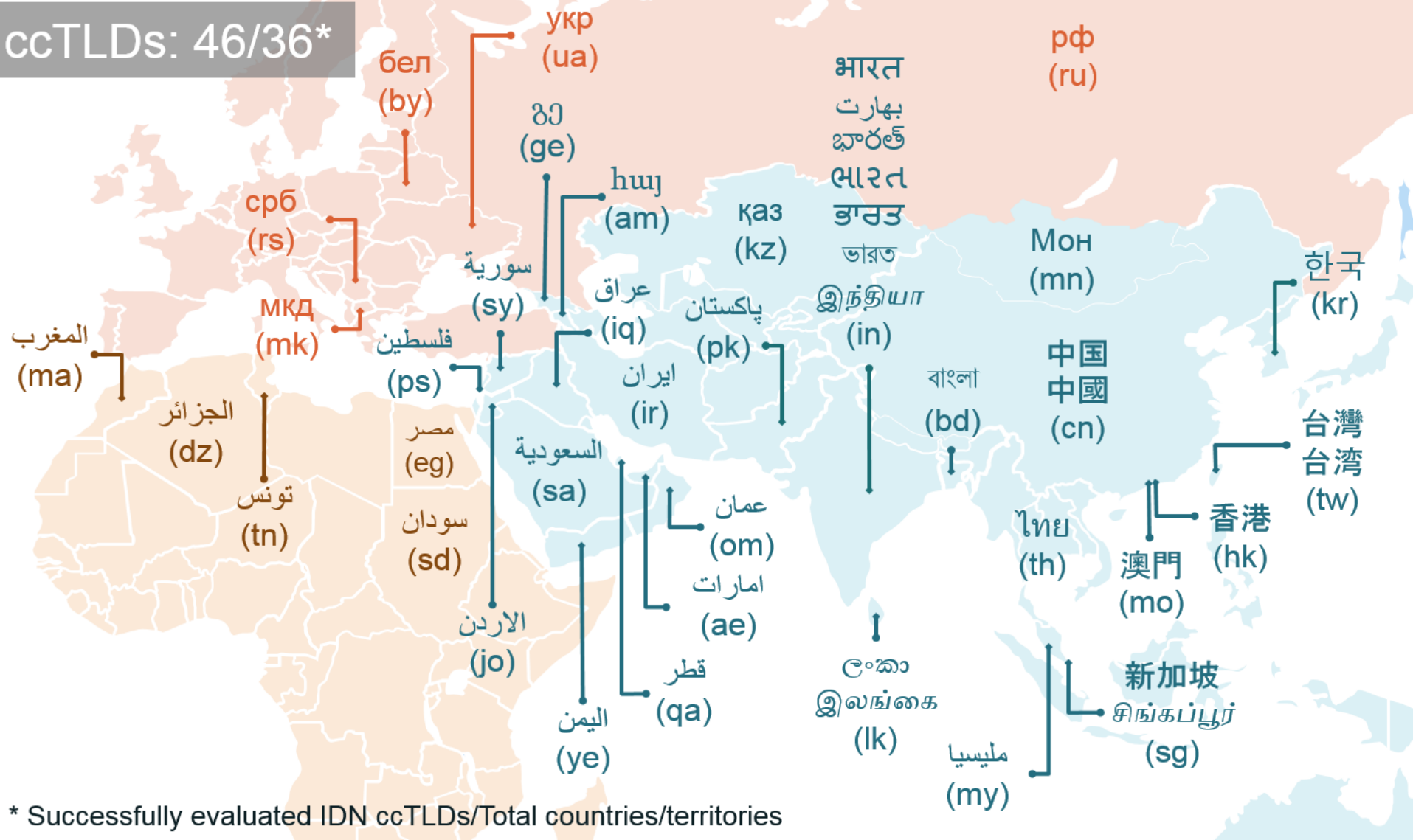




# **IDN ccTLD Fast Track Process Implementation**

# IDN ccTLD Fast Track Process

ccTLDs: 46/36\*





# **IDNs at Second Level for gTLDs**

# IDN Impl. Guidelines for the Second Level

- ⦿ IDN registration policies and practices at the second level
  - ⦿ Designed to minimize consumer risk or confusion
    - Respect interests of local languages and character sets
- ⦿ Last updated in 2011: [Version 3.0](#)
  - ⦿ New IDN terminology due to IDN Variant TLD projects
  - ⦿ Consistent machine readable format for language tables
  - ⦿ Updated content analysis: IANA IDNA table with Unicode versions, MSR, LGR
  - ⦿ Additional guidelines: informational RFC 6912, IDN TLD Variants User Experience study
- ⦿ GNSO community at ICANN asked to initiate review
  - ⦿ Current status – initiating next revision

# IDN Tables for the Second Level

- ⦿ IDN Tables submitted by new gTLDs intending to offer IDNs at second level
  - ⦿ Varied in the character repertoire and contextual rules
- ⦿ Develop reference Label Generation Rulesets (LGRs) for facilitation and consistency in Pre-Delegation Testing (PDT) and the Registry Service Evaluation Process (RSEP)
- ⦿ Promote reuse for secure and consistent end-user experience





**Get Involved:  
Speak up for Your Language**

# Communication and Outreach Efforts

- ⦿ IDN Program sessions at ICANN meetings
- ⦿ IDN Program updates to SOs/ACs at ICANN meetings
- ⦿ Presentations at meetings
  - ⦿ APTLD, APriGF, ArabIGF, IGFs, TLDCON, AFRINIC, RIPE NCC
- ⦿ Email communication to SOs/ACs – call to action
- ⦿ Blog for general community: <http://blog.apnic.net/2014/09/30/speak-up-for-your-language/>
- ⦿ IDN pages at ICANN Community Wiki and ICANN Website
- ⦿ IDN mailing lists
  - ⦿ {vip, lgr, ArabicGP, ArmenianGP, ChineseGP, ...}@icann.org

# How to get involved?

## Volunteer

### **Volunteer for your script Generation Panel (GP)**

To contribute expertise, contribute to the GP for your script. You can get involved by simply emailing your CV and a brief statement of interest to [identlds@icann.org](mailto:identlds@icann.org)

## Review

### **Review work through public comments**

Sign up for the IDN mailing list [vip@icann.org](mailto:vip@icann.org) (to sign up, visit <https://mm.icann.org/listinfo/vip>) and participated in the review of IDN work being done at ICANN through the public comments

## Listen

### **Keep yourself updated**

Attend regular IDN Program Update sessions at ICANN meetings and sign up on the IDN mailing list [vip@icann.org](mailto:vip@icann.org) to get updates on the IDN Program at ICANN

# Useful Links for IDN Program @ ICANN

- To join a Generation Panel for your language, submit CV and statement of interest at: [identlds@icann.org](mailto:identlds@icann.org); Call for Generation Panels: <http://www.icann.org/en/news/announcements/announcement-11jul13-en.htm>
- LGR Document Repository: <https://community.icann.org/display/croscomlgrprocedure/Document+Repository>
- Community Wiki for LGR Project: <https://community.icann.org/display/croscomlgrprocedure/Root+Zone+LGR+Project>
- IDN ccTLD Fast Track Page: <https://www.icann.org/resources/pages/string-evaluation-completion-2014-02-19-en>
- IDN Implementation Guidelines: <https://www.icann.org/resources/pages/implementation-guidelines-2012-02-25-en>

# Engage with ICANN



## Thank You and Questions

Reach us at: Sarmad Hussain

Email: [sarmad.hussain@icann.org](mailto:sarmad.hussain@icann.org)

Website: [icann.org](http://icann.org)



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