

Internationalized Domain Name (IDN) Program Update

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ICANN76 - Prep Week
1 March 2023

Agenda

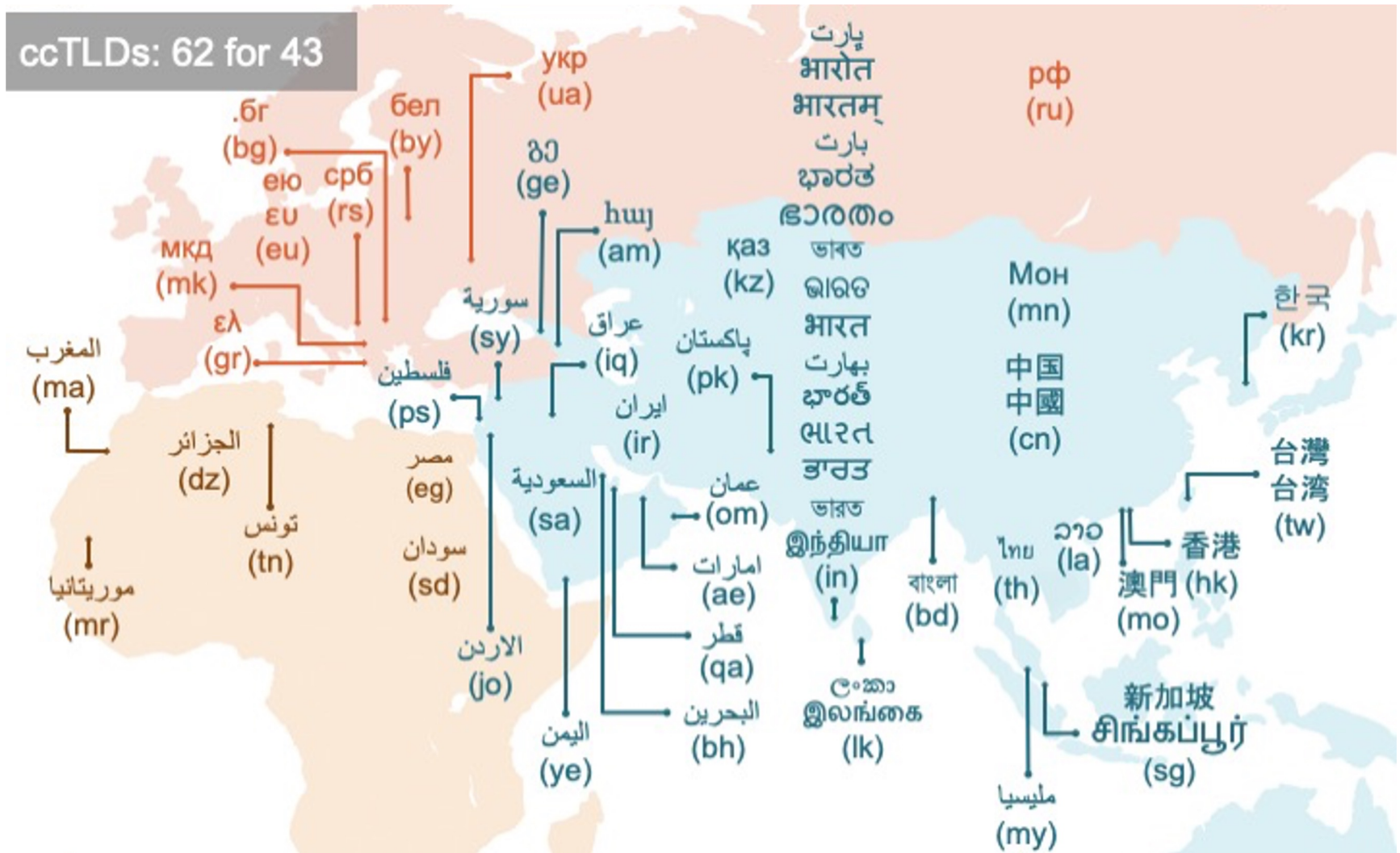
- IDNs in Numbers (15 mins)
- Status of IDN-Related Projects at ICANN (25 mins)
 - Second Level Reference Label Generation Rules (LGR)
 - LGR Tool
 - IDN Table Update Project
 - IDN Implementation Guidelines v4.1
- IDN-Related Policy Development (10 mins)
- Q&A (10 mins)

IDNs in Numbers

2022 IDN Annual Report

- Since 2022, ICANN org have been publishing IDN Annual Reports.
[2021 Report](#)
- The 2022 IDN Annual Report includes the following:
 - Delegation and registration statistics
 - IDN policy being developed by the ICANN community
 - IDN-related projects at ICANN org
 - IDN implementation and operations at ICANN org
- The 2022 IDN Annual Report can be downloaded [here](#).

IDN Country Code Top-Level Domains (IDN ccTLDs)



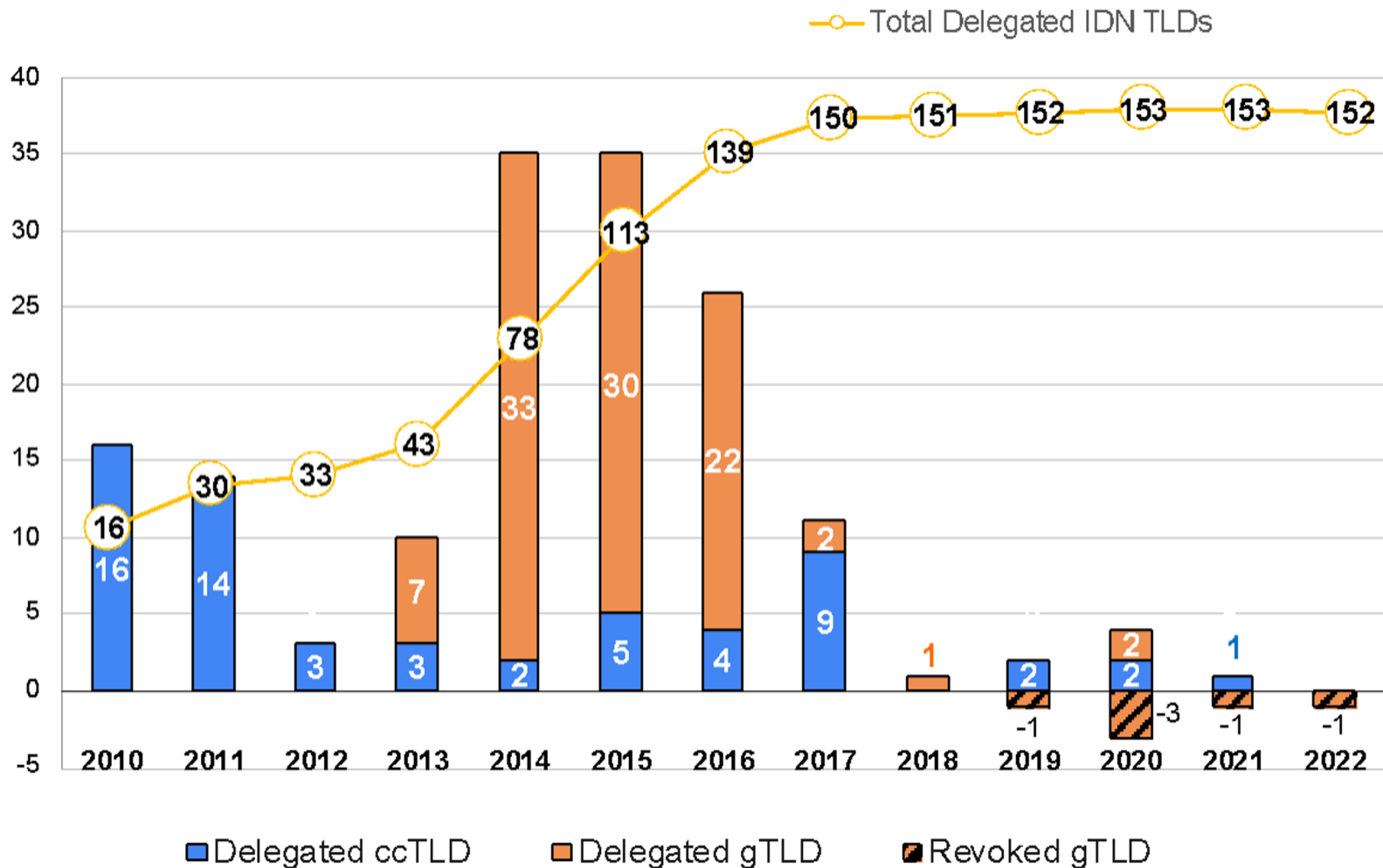
62 IDN ccTLD strings pass the string evaluation from 43 countries and territories (as of 1 March 2023).

IDN Generic Top-Level Domains (IDN gTLDs)

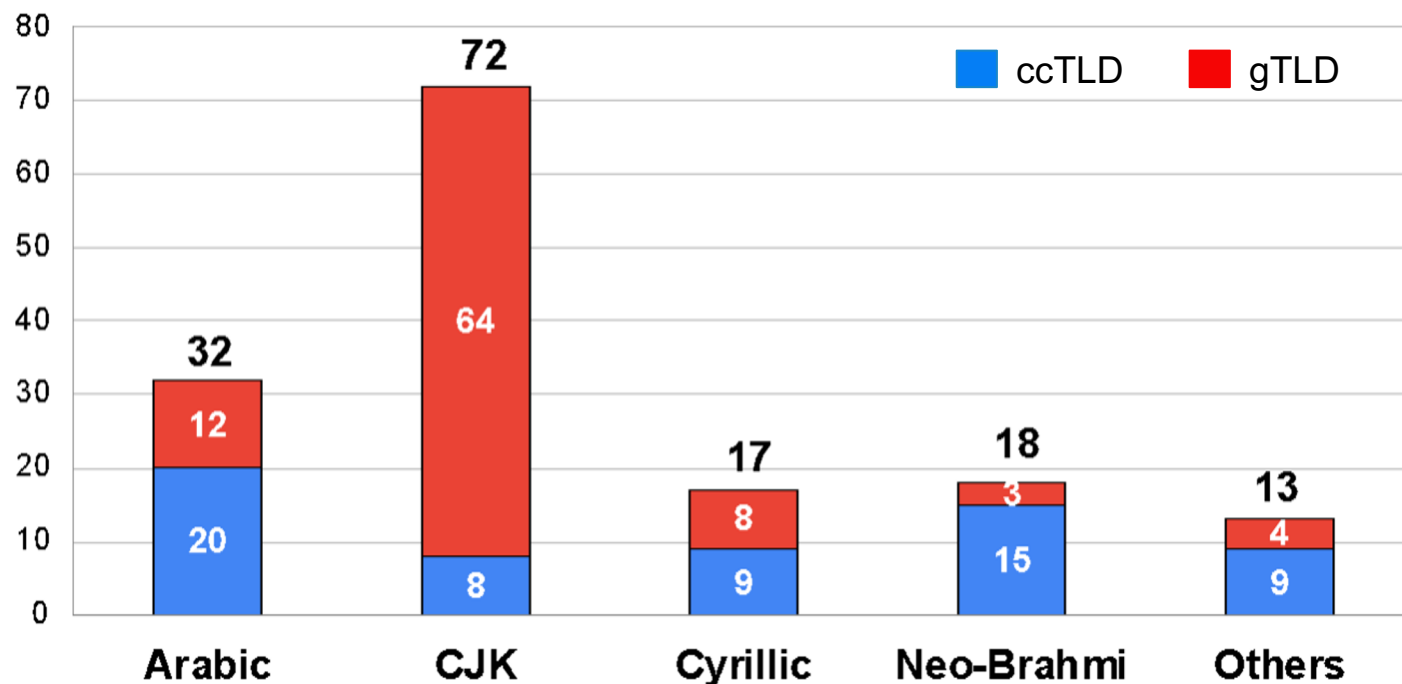
vermögensberater	دیار	كوم	アマゾン	中信	商城	广东	書籍	网络
vermögensberatung	ابوظبي	موقع	グーグル	中文网	商店	微博	机构	联通
дети	اتصالات	همراه	クラウド	亚马逊	商标	慈善	淡马锡	谷歌
католик	ارامكو	कॉम	コム	企业	嘉里	我爱你	游戏	购物
ком	العليان	नेट	ストア	佛山	嘉里大酒店	手机	点看	通販
москва	بازار	संगठन	セール	信息	在线	招聘	移动	集团
онлайн	بيتك	कॉम	ファッション	健康	大拿	政务	组织机构	電訊盈科
орг	شبكة	닷넷	ポイント	八卦	天主教	政府	网址	飞利浦
рус	عرب	닷컴	みんな	公司	娱乐	新闻	网店	食品
сайт	كاثوليك	삼성	世界	公益	家電	时尚	网站	餐厅
								香格里拉

91 IDN gTLDs are currently delegated (as of 1 March 2023).

Delegated, Revoked, and Total IDN TLDs by Year



IDN TLDs by Script



- **CJK** includes Chinese (Han), Japanese (Hiragana, Katakana, Han[Kanji]), and Korean (Hangul, Hanja[Kanji]) scripts.
- **Neo-Brahmi** includes Bangla, Devanagari, Gujarati, Gurmukhi, Kannada, Malayalam, Oriya, Tamil, and Telugu scripts
- **Others** includes following scripts: Armenian, Georgian, Greek, Hebrew, Latin, Lao, Sinhala, and Thai

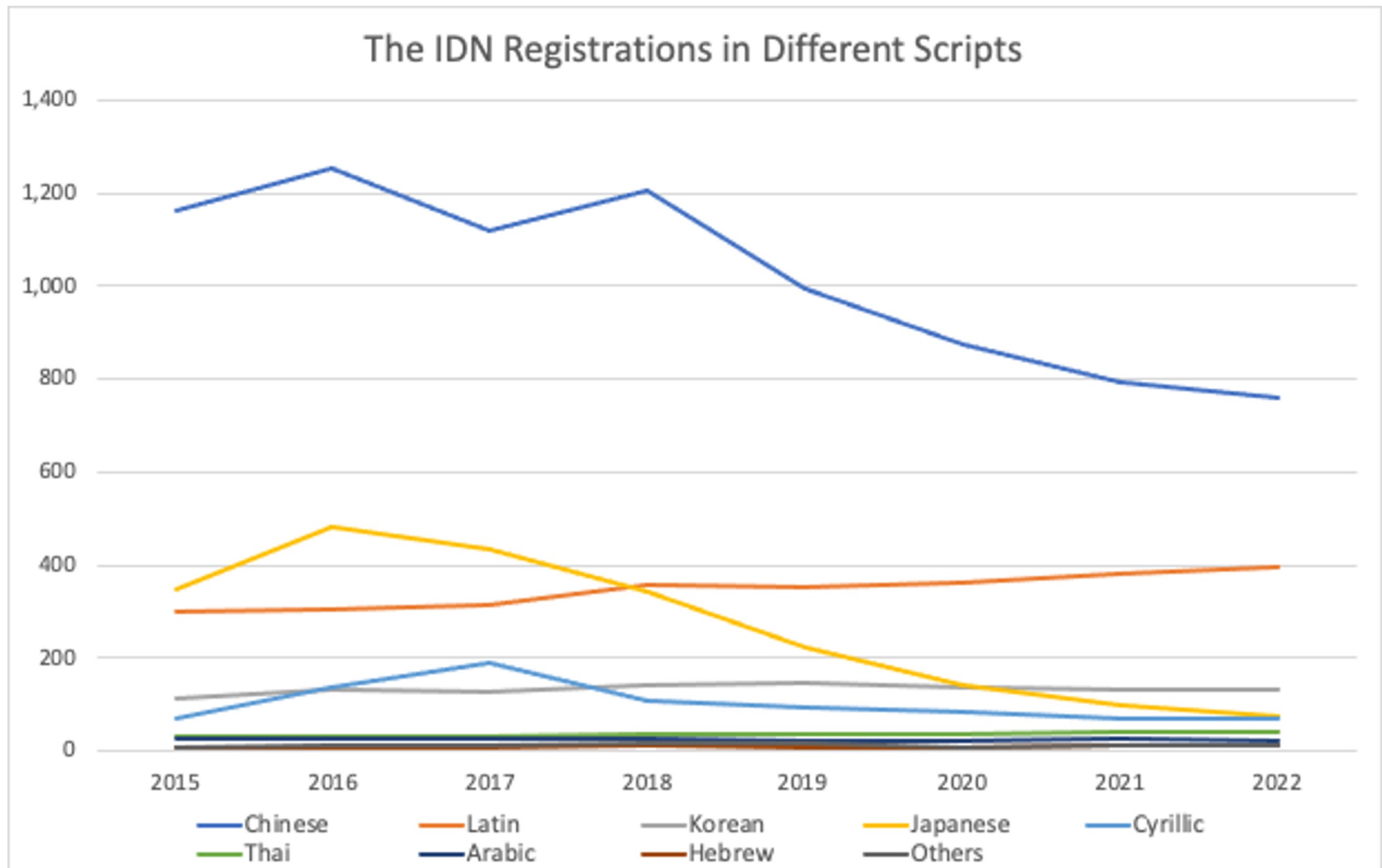
IDN Registrations Under gTLDs by Year

(in thousands)

Script/ Language	2015	2016	2017	2018	2019	2020	2021	2022
Chinese	1,162	1,251	1,119	1,207	995	877	793	760
Latin	300	306	316	359	353	364	381	396
Korean	112	131	126	143	146	136	134	134
Japanese	347	482	435	341	222	140	97	74
Cyrillic	68	139	190	109	93	85	72	69
Thai	31	32	33	38	36	37	40	43
Arabic	26	26	26	27	24	21	27	20
Hebrew	9	7	7	12	9	7	10	12
Others	9	13	14	16	15	8	10	10
Total	2,064	2,378	2,266	2,252	1,893	1,675	1,564	1,518

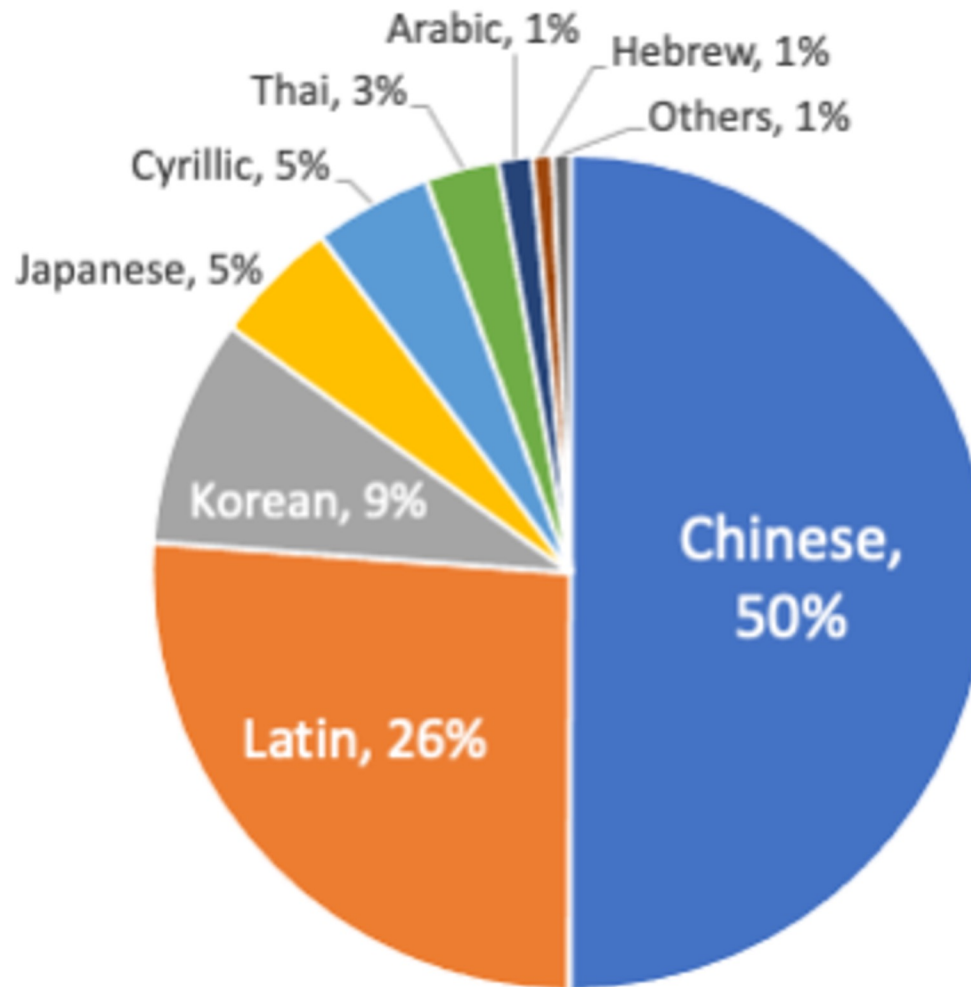
IDN Registrations Under gTLDs by Script

(in thousands)



Distribution of IDN Registrations Under gTLDs

(December 2022)



Second Level Reference Label Generation Rules (LGRs)

Reference Label Generation Rules (LGR)

- Background

Based on the script user community input for 26 scripts garnered through the [RZ-LGR project](#).

ICANN org developed second level [reference LGRs](#) following consultations with the script communities, which were finalized after Public Comment proceedings.

TLD registry operators can use reference LGRs when they develop rules for IDN registration under their TLDs.

ICANN org uses reference LGRs to review the registration rules (called IDN Table) under gTLDs.

This contributes to consistency and transparency of the review as requested by the Registries Stakeholder Group (RySG).

Reference Label Generation Rules (LGR)

- [Public Comment](#) for 7 script-based LGR and related updates was opened in January 2023.
- After the Public Comment proceeding, 54 reference LGRs will be [published](#):

31 language-based LGRs: Arabic, Belarusian, Bosnian (Cyrillic), Bosnian (Latin), Bulgarian, Chinese, Danish, English, Finnish, French, German, Hebrew, Hindi, Hungarian, Icelandic, Italian, Japanese, Korean, Latvian, Lithuanian, Macedonian, Montenegrin, Norwegian, Polish, Portuguese, Russian, Serbian, Spanish, Swedish, Thai, and Ukrainian.

23 script-based LGRs: Arabic, Armenian, Bangla (Bengali), Cyrillic, Devanagari, Ethiopic, Georgian, Greek, Gujarati, Gurmukhi, Hebrew, Japanese (Hiragana, Katakana, Kanji[Han]), Kannada, Korean (Hangul, Hanja [Han]), Khmer, Lao, Latin, Malayalam, Myanmar, Oriya, Sinhala, Tamil, and Telugu.

*

Additional Scripts for IDNs

- RZ-LGR-5 currently supports 26 scripts, and developed the reference LGRs for the second level accordingly.
- However, Unicode version 14.0 encodes [159 scripts](#), and categorizes these scripts into the following three sets for use in identifiers in [Unicode Standard Annex #31: Unicode Identifier and Pattern Syntax](#):
 - Recommended Scripts (28 scripts), Limited Use Scripts, and Excluded Scripts.
- In the [Public Comment](#), the community was asked to provide feedback on whether Limited Use and Excluded Scripts should be used in domain names.
- The RySG suggested that registry operators should be allowed to support any of the Limited Use and Excluded Scripts:
 - “If a reasonable justification is made by a registry operator.”
 - “This way communities that use those scripts are not excluded from representation on the Internet from a domain name registration standpoint.”

Next Steps

- ICANN org is working with the RySG and the script community to:
 - Develop the approach to how Limited Use and Excluded Scripts should be used in domain names.
 - Develop the next batch of reference LGRs.

Label Generation Rules (LGR) Tool

- The LGR Tool is accessible via ICANN Account



Welcome to Your ICANN Account

ICANN Account gives you access to many ICANN services using only one login. This is your one-stop-shop to launch the ICANN services you have signed-up for. To get started, select a service from your list below.



- The LGR Tool has been developed and maintained by ICANN org to provide three main functions.
 1. **Basic mode:** Users can easily validate a label or list of label and generate their variant labels by selecting the applicable LGR.
 2. **IDN Table Review mode:** Users can upload IDN tables and compare them with the reference data. The reference data can be the pre-loaded RZ-LGRs or reference LGRs or the users uploaded LGR. Can also compare the IDN table with the uploaded reference data, which is a new feature in 2022.
 3. **Advance mode:** Users can use the mode to create an LGR, modify, merge, compare, and manage multiple LGRs.
- The tool is an open source software. The parties interested in integrating this functionality into their own systems can find the source code on GitHub. More information can be found [here](#).

LGR Tool Demo – Validate Label(s) Mode

🏠 LGR Tools

Tasks

Help ▾

👤 Pitinan Kooarmornpatana ▾

Welcome to the LGR (Label Generation Ruleset) Tools

Select your mode:

✓ Validate label(s) against an LGR

📄 Review IDN table(s)

🔧 Advanced LGR Tools

- Validate label(s) against an LGR mode performs:
 - Validate label(s) against an LGR
 - Check collision with existing delegated TLDs
 - Generate variant labels

LGR Tool Demo – Example ‘abc’ in Latin script

Label Validation Tool

Validate label(s) against

lgr-5-latin-script-26may22-en

Select Latin Script RZ-LGR

View LGR as [XML](#) | [HTML](#)

[Upload a list of labels](#)

abc

Input ‘abc’ in Latin script

☒ Check for collision with existing TLDs

☐ Include mixed script variants

Validate

abc

✓ VALID

The tool indicates that ‘abc’ is a valid label.

U-label	Disposition	Code point sequence
abc	valid	U+0061 (a) U+0062 (b) U+0063 (c)
abc		

Show / hide log

[Action index: 9] <action disp="valid" comment="catch all (default action) @"/>

✗ The input label or its variant labels collide with an existing TLD or its variant TLDs.

The tool indicates that ‘abc’ collides with an existing TLD.

Collision

The label is in the TLDs list

LGR Tool Demo – Example ‘ecc’ in Latin script

Label Validation Tool

Validate label(s) against

lgr-5-latin-script-26may22-en

View LGR as [XML](#) | [HTML](#)

[Upload a list of labels](#)

ecc

Select Latin Script RZ-LGR

Input ‘ecc’ in Latin script

Validate

ecc

✓ VALID

U-label	Disposition	Code point sequence	
ecc ecc	valid	U+0065 (e) U+0063 (c) U+0063 (c)	Show / hide log

[Action index: 9] <action disp="valid" comment="catch all (default action)" @"/>

✓ No collision

Collision

No collision.

Variant labels (including original as last)

2 variant label(s) generated.
By disposition: blocked: 1, valid: 1

ecc xn--e1aya	blocked	U+0435 (e) U+0441 (c) U+0441 (c)	Show / hide log
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[Action index: 2] <action disp="blocked" any-variant="blocked" comment="any variant label containing blocked variants is blocked" @"/>

ecc ecc	valid	U+0065 (e) U+0063 (c) U+0063 (c)	Show / hide log
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[Action index: 9] <action disp="valid" comment="catch all (default action)" @"/>

The tool indicates that ‘ecc’ is a valid label.

The tool indicates that the ‘ecc’ does not collide with any existing TLD.

The tool generates ‘ecc’ in Cyrillic script as a blocked variant block label

IDN Table Update Project

Background and Motivation

- A generic top-level domain (gTLD) registry operator that intends to offer registrations in different languages and scripts:
 - Must define an IDN table for a particular language or script.
 - Have their tables reviewed by ICANN for security and stability considerations.
- In 2019, the Registries Stakeholder Group (RySG) asked to make the IDN table review process more consistent and transparent.
- To address the RySG's input, ICANN org is conducting an IDN Table Project, with the following output:
 - Defined [IDN Services Processes](#) and [RST Process](#) that bring IDN table reviews in-house to maintain consistency.
 - Developed [Reference Label Generation Rules for the Second Level \(Ref. LGRs\)](#) based on latest knowledge and [IDN Table Review Tool](#) to provide transparency.

Project Summary

- Phase 1 (completed in June 2021)

Ensured that all the contractually approved IDN tables are made available in the IANA [Repository](#) as required in Specification 6, Section 1.4 of the [Base gTLD Registry Agreement](#) [IDN Table Review Tool](#) and [additional Reference LGRs](#) were made available.

Dedicated [IDN Service: Add, Modify, or Remove](#) service request was also made available in the Naming Services portal (NSp) to create a more efficient process for registry operators.

- Phase 2 (Completed in December 2021)

ICANN org reviewed and analyzed all 14,139 IDN tables published in the IANA Repository and identified the IDN tables that contain a potential security or stability issue.

- Phase 3 (2022-2023)

ICANN org communicated the issues found in Phase 2 to the relevant RSPs and collaboratively worked with registry operators and registry service providers to address these issues.

IDN Implementation Guidelines v.4.1

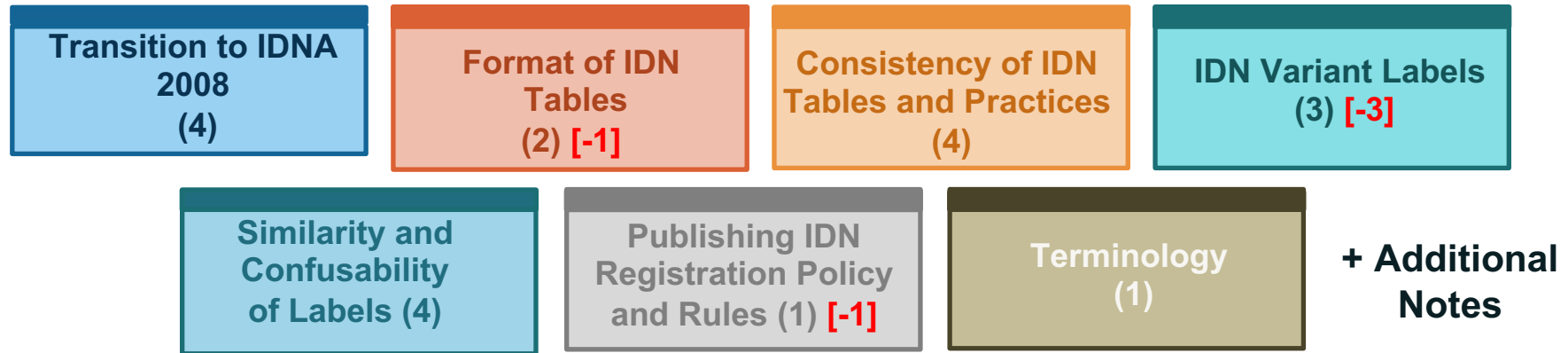
Background and Status

- The IDN Implementation Guidelines relate to IDN registration policies and practices designed to minimize the risk of cybersquatting and consumer confusion under TLDs.
Contractually binding through most gTLD Registry Agreement
Recommended through the IDN ccTLD Fast Track Process.
- Version 4.0 was [published](#) on 10 May 2018. GNSO Council requested the ICANN Board to defer the adoption.
- GNSO IDN Expedited Policy Development Process (IDN EPDP) was formed to develop IDN related policy overlapping with some guidelines.
- After subsequent discussion between the ICANN Board and GNSO Council, the ICANN Board deferred implementation of guidelines 6a, 11, 12, 13, 18 in version 4.0 as they overlapped with ongoing work in the IDN EPDP.
- ICANN Board directed ICANN org to publish remaining guidelines as [version 4.1](#) and implement the remaining guidelines.
- ICANN org starting the analysis for implementation. More detail will be shared when the analysis is completed.

Related Work Being Covered by IDN EPEP WG

● Relevant Guidelines

Total of 7 topics with 19 guidelines and additional notes in IDN Guidelines Version 4.0, 5 guidelines are deferred and being covered by IDN EPDP WG.



Summary of guidelines

6(a) IDN Table in LGR format (RFC7940).

- 11 IDN Variant Labels allocated to the same registrant or blocked.
- 12 Variant label on the request of the same registrant.
- 13 IDN Table are harmonized under a TLD.
- 18 Publish IDN Registration Policies and Rules.

● Mechanism to update the IDN Implementation Guidelines in the future.

IDN-Related Policy Development

Current Status of IDN-Related Policy Developments

- New gTLD Subsequent Procedures (SubPro):
[Final Report](#) approved by the GNSO Council on 18 February 2021.
On 12 December 2022, ICANN org delivered the Operational Design Assessment (ODA) to the ICANN Board of Directors.
Currently under consideration by the Board.
- GNSO IDN EPEP
[Charter](#) approved by GNSO Council on 20 May 2021.
IDN EPDP WG underway.
- ccNSO IDN ccPDP4
[Charter](#) approved by ccNSO in August 2021.
Currently, an IDN ccPDP WG is underway.
- There are liaisons between IDN EPDP and IDN ccPDP4 working groups to make sure both Supporting Organizations are informed and to develop aligned policies.

IDN-Related Recommendations in SubPro

- RZ-LGR is used to validate a gTLD string and to determine its variant labels (Recommendation 25.2).
- Single character gTLDs are allowed pending input from Chinese, Japanese, and Korean script communities (Recommendation 25.4).
- Variant gTLDs are allowed with the following conditions:
 - Variant gTLDs are managed by the same registry operator and backend provider (Recommendation 25.5).
 - Variant labels at the second level are registered to the same registrant (Recommendation 25.6 – 25.8).

Engage with ICANN – Thank You and Questions



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