

Internationalized Domain Names (IDNs) and Universal Acceptance (UA)

A Brief Overview

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Why Do We Need IDNs and UA?

“The Web does not just connect machines, it connects people,”

-- Tim Berners-Lee



“Language is just as important to building human connections online as it is offline.”

-- [The Digital Language Divide](#)

Why Do We Need IDNs and UA?

UNESCO explains:

“Increasingly, information and knowledge are key determinants of wealth creation, social transformation and human development.

Language is a primary vector for communicating information and knowledge, thus the opportunity to use one’s language on the Internet will determine the extent to which one can participate in emerging knowledge societies.”

As domain names in local languages, or Internationalized Domain Names (IDNs), offer a key to access information and knowledge in local languages online, ICANN has been working with the community to enable them.

Internationalized Domain Names (IDNs)

ASCII Domain Name Label

www.cafe-123.com



2

Forming ASCII Labels

Use LDH

- Letters [A..Z a..z]
- Digits [0..9]
- Hyphen [-]

Label length = 63

Other constraints (e.g., on hyphen)

1

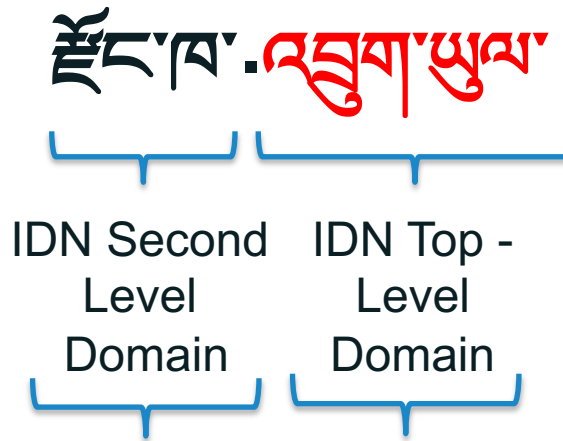
Forming ASCII Labels

Use only Letters

- Letters [A..Z a..z]

Label length = 63

Internationalized Domain Names



2

Syntax of IDN Labels

Valid U-Label: Unicode code points as constrained by **the “LDH” scheme** within IDNA 2008 – sets baseline limiting to letters, marks and digits

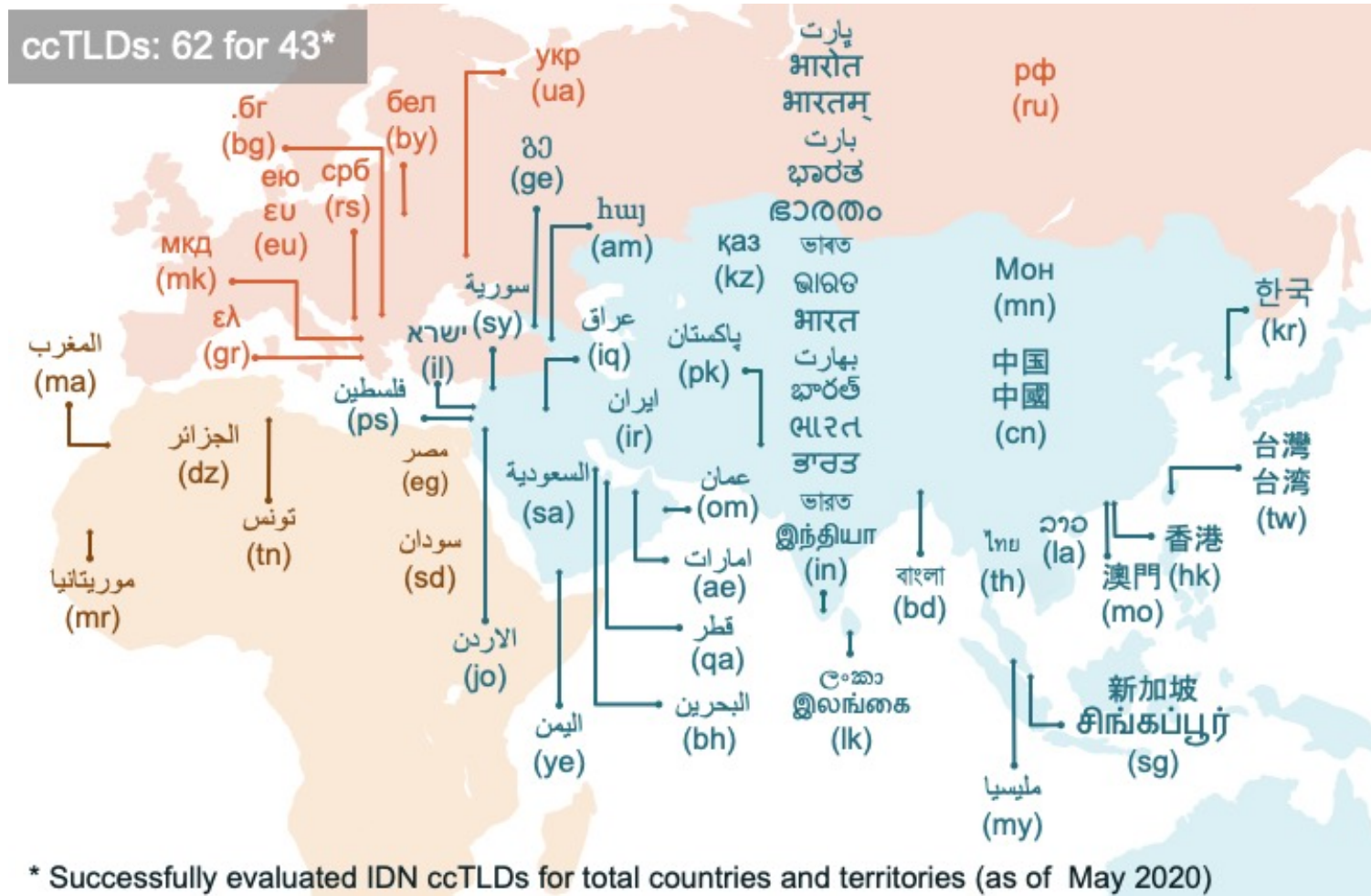
Syntax of IDN Labels

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

1

IDN Country Code Top-Level Domains (ccTLDs)

- Implement the string evaluation as part of the IDN ccTLD Fast Track Process

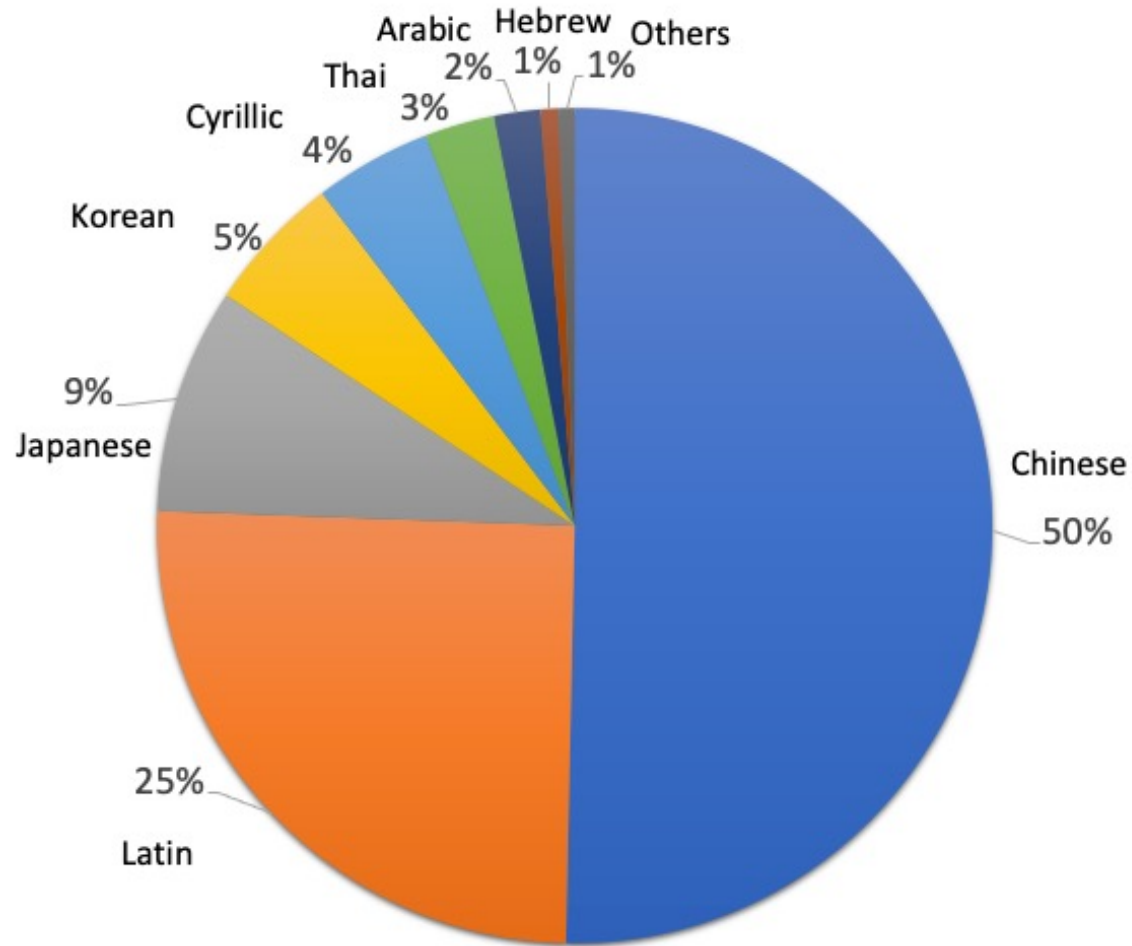


Domain Names in Different Scripts

The IDN TLDs delegated to date represent 37 languages in 23 scripts.

1. համընդհանուր-ընկալում-թեստ.hայ Armenian
2. മുൻ‌കരുതൽ-ചെടികൾ-ടെസ്റ്റ്.ଭାରତ Oriya
3. უნივერსალური-თავსობადობის-ტესტი.გე Georgian
4. 다국어도메인이용환경테스트.한국 Korean
5. സാർവത്രിക-സ്വീകാര്യതാ-പരിശോധന.ഭാരതം Malayalam
6. تجربة-القبول-الشامل.موريتانيا Arabic

IDN Registrations by Script Under gTLDs (June '22)



Based on 1.5 million registrations

Universal Acceptance (UA)

Universal Acceptance of Domain Names and Email

Goal

All domain names and email addresses work in all software applications.

Impact

Promote consumer choice, improve competition, and provide broader access to end users.

- ⦿ Domain Names:
 - Newer top-level domain names: example.**sky**
 - Longer top-level domain names: example.**engineering**
 - Internationalized Domain Names (IDN): **คน.ไทย**
- ⦿ Internationalized email addresses (EAI):
 - ASCII@ASCII (new and long TLD) ekrem@misal.**istanbul**
 - ASCII@IDN marc@**société**.org
 - Unicode@ASCII **测试**@example.com
 - Unicode@IDN **ईमेल@उदाहरण.भारत**
 - Unicode@IDN; right to left scripts **ای-میل @مثال.موقع**



Accept



Validate



Process

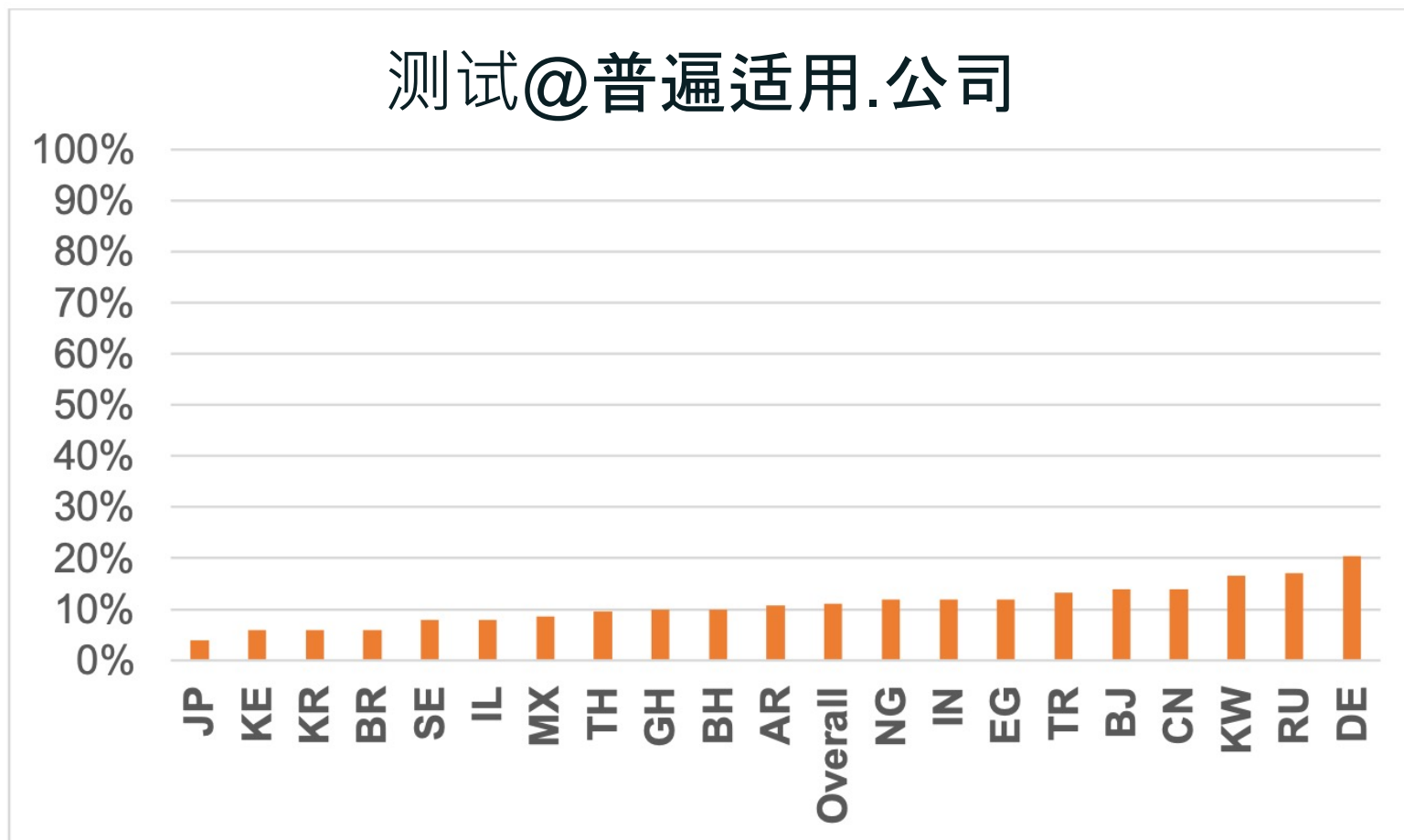


Store



Display

For details, see [UASG027](#)



Email Address Acceptance by Local Websites

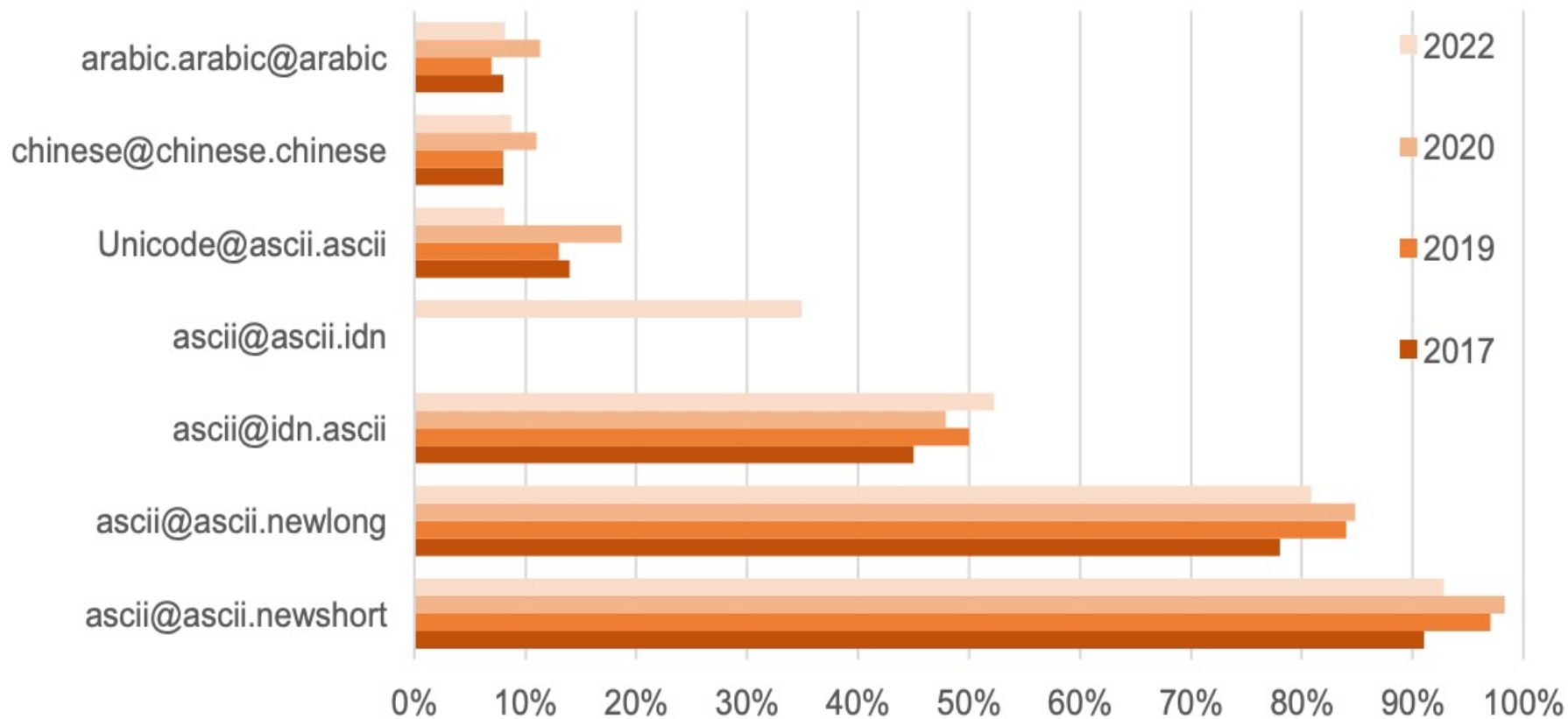
	BH	CN	DE	EG	IL
ascii@local.ascii		24.0%	64.0%		48.0%
local@ascii.ascii		14.0%	34.0%		14.0%
local@local.local	10.0%	14.0%	28.0%	16.0%	8.0%
ascii@local.local			54.0%		26.0%
local@local.ascii					
	IN	KW	RU	SE	TH
ascii@local.ascii					42.3%
local@ascii.ascii	18.0%			16.0%	21.2%
local@local.local	12.0%	16.5%	20.0%	4.0%	9.6%
ascii@local.local	18.0%			20.0%	28.8%
local@local.ascii				6.0%	

For details, see [UASG027](#)

	Overall	Media	E-Commerce	Online Services	Banking	Gov't	Education
ascii@ascii.newshort	98%	98%	96%	98%	99%	99%	100%
ascii@ascii.newlong	85%	83%	84%	85%	82%	83%	85%
ascii@chinese.ascii	48%	51%	47%	46%	42%	46%	45%
chinese@ascii.ascii	19%	21%	15%	20%	24%	22%	17%
chinese@chinese.chinese	11%	12%	7%	10%	15%	15%	12%
arabic.arabic@arabic	11%	13%	7%	10%	16%	16%	12%

Email Address Acceptance by Global Websites

For details, see [UASG039](#)



EAI Support Across Email Servers Globally

Survey date	18-Oct-2021	06-Jan-2022	07-Apr-2022
Test email script	Arabic	Cyrillic	Han
Processed gTLD zones	1,180	1,173	1,172
Total SLDs	210,811,274	212,989,788	215,885,039
Unique MX servers	34,996,159	35,129,853	35,521,173
Unique IP addresses	2,537,176	2,517,759	2,506,329
<ul style="list-style-type: none"> Test passed Test failed IP could not be tested 	<p>7.04 %</p> <p>2,537,176 TOTAL</p> <p>32.33 % 60.63 %</p>	<p>7.24 %</p> <p>2,517,759 TOTAL</p> <p>32.89 % 59.93 %</p>	<p>7.32 %</p> <p>2,506,329 TOTAL</p> <p>33.06 % 59.61 %</p>
<ul style="list-style-type: none"> MX Full MX Partial MX None Not tested No IPs 	<p>.02 %</p> <p>34,996,159 TOTAL</p> <p>6.69 % 19.52 % 67.74 %</p>	<p>.02 %</p> <p>35,129,853 TOTAL</p> <p>6.62 % 19.95 % 67.05 %</p>	<p>.02 %</p> <p>35,521,173 TOTAL</p> <p>6.64 % 20.26 % 66.11 %</p>

- ⦿ ICANN supports the community work on promoting IDNs and UA-readiness.
 - Community organized Universal Acceptance Steering Group (UASG).
 - Governmental Advisory Committee (GAC) IDN and UA Working Group.
 - At-Large Advisory Committee (ALAC) IDN and UA Working Group.
- ⦿ ICANN Board has prioritized work on IDNs and UA.
 - Board IDN-UA Working Group oversees the work by ICANN org.
 - Included UA in FY22 Board Operational Priorities (5.3.1).
- ⦿ ICANN org has focused on IDNs and UA:
 - [ICANN Strategic Plan for 2021-2025](#).
 - [ICANN CEO's FY22 Goal 8](#) on IDNs and UA.
 - Set up [IDN](#) and [UA](#) Programs to conduct work and support community.
 - IDN and UA Steering Committee to coordinate cross-functionally in ICANN.

Are Your Software Applications UA-Ready?

<https://uasg.tech/eai-check/>



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Email Address Internationalization

EAI Check

This widget takes an email address and checks to see if the mail server advertises support for receiving EAI (Email Address Internationalization) email addresses.

Check to see if your email address is EAI compliant. Enter a valid email address below:

Enter Valid Email Address

CHECK ADDRESS



- UASG and ICANN continue to undertake gap analysis, remediation, training, and outreach:
 - Gap analysis – social media, Browsers, programming languages, EAI tools, etc.
 - Remediation – engaging technology forums (e.g., Github) and bug reporting.
 - Training and outreach – through UA Local Initiatives and UA Ambassadors.

We request the GAC to help address UA-readiness and lead by example:

1. **Raise awareness** of the technical problems within governments.
2. **Upgrade and use UA-ready systems** as a government to create the necessary demand, e.g., upgrade email servers, use email in local languages.
3. **Advocate more broadly** to support UA in systems (e.g., in e-govt. services, the private sector organizations, etc.)

- ⦿ See <https://uasg.tech> for a complete list of reports.
 - Universal Acceptance Quick Guide: [UASG005](#)
 - Introduction to Universal Acceptance: [UASG007](#)
 - Quick Guide to EAI: [UASG014](#)
 - EAI – A Technical Overview: [UASG012](#)
 - Universal Acceptance Readiness Framework: [UASG026](#)
 - Considerations for Naming Internationalized Email Mailboxes: [UASG028](#)
 - Evaluation of EAI Support in Email Software and Services: [UASG030A](#)
 - UA of Content Management Systems (CMS) Phase 1: [UASG032](#)
 - UA-Readiness of Social Media Platforms: [UASG035](#)
 - UA-Readiness of Some Programming Language Libraries and Frameworks: [UASG037](#)
 - FY22 UA Readiness Report: [UASG041](#)

- ⦿ For more information on UA, email info@uasg.tech or UAProgram@icann.org
- ⦿ Access all UASG documents and presentations at: <https://uasg.tech> or <https://icann.org/ua>
- ⦿ Access details of ongoing work from wiki pages: <https://community.icann.org/display/TUA>
- ⦿ Register to participate or listen in the UA discussion list at: <https://uasg.tech/subscribe>
- ⦿ Register to participate in UA working groups [here](#).
- ⦿ Follow the UASG on social media: [Twitter](#) | [Facebook](#) | [LinkedIn](#)

Engage with ICANN – Thank You and Questions



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Importance of UA for governments and why EPDP on IDNs is important

Nigel Hickson
GAC UK Representative

GAC Webinar
1 September 2022

