

I C A N N

VIRTUAL ANNUAL GENERAL

69

Community Update on Universal Acceptance (UA) Readiness

ICANN69 Annual General Meeting
21 October 2020



Agenda

- Introduction to Universal Acceptance (UA)
- UA 2020 Activities
- UA Working Group Updates
 - UA Measurement Working Group
 - Email Addresses Internationalization (EAI) Working Group
 - UA Technology Working Group
 - UA Communications Working Group
- Questions and Answers (Q&A)

An Introduction to Universal Acceptance

Dr. Ajay Data
Chair, UASG



Universal Acceptance

What is Universal Acceptance (UA)?

- The Domain Name System (DNS) has changed dramatically over the last decade. There are now more than 1,200 active generic top-level domains (gTLDs) and some of these include domains that use non-Latin scripts and that are longer than three characters (e.g. .ไทย, .LONDON, .SPORT).
- Universal Acceptance is cornerstone to a digitally inclusive Internet by ensuring all domain names and email addresses – in any language, script, or character length (e.g., .pф, .PHOTOGRAPHY) – are accepted equally by all Internet-enabled applications, devices, and systems.
- Achieving UA ensures every person has the ability to navigate and communicate on the Internet using their chosen domain name and email address that best aligns with their interests, business, culture, language, and script.

What Can UA Mean to You?

- A strong understanding of UA is the new competitive differentiator every developer should have in their skill set.
- System developers can support the next billion Internet users (many of which are non-English speaking) by ensuring that their systems are UA-ready.
- Help support a multilingual and diverse Internet by ensuring your mail systems, corporate systems, and customer collaboration tools support Email Address Internationalization (EAI).
- Governments can better reach and serve their diverse constituents by being UA-ready.
- Businesses that are UA-ready will be best positioned to reach growing global audiences and maximize revenue potential from the current Internet population, as well as the next billion.
- The Universal Acceptance of Internet domain names is a \$9.8+ billion opportunity (a conservative estimate).

Universal Acceptance Steering Group (UASG)

The UASG was founded in February 2015 and is tasked with undertaking activities that will effectively promote the Universal Acceptance of all valid domain names and email addresses.

The UASG's main objectives are to:

- Raise awareness of UA issues among relevant stakeholders.
- Help developers make their systems UA-ready by providing documentation and getting common standards, technology, and tools UA-ready.
- Encourage businesses and governments to ask their developers and suppliers to provide UA-ready solutions for the benefit of end users.
- Measure progress on UA readiness.

Universal Acceptance Steering Group (UASG)



Chair
Dr. Ajay Data
XgenPlus



Vice-Chair
Dušan Stojicevic
Gransy



Vice-Chair
Mark Svancarek
Microsoft



Vice-Chair
Dennis Tan Tanaka
Verisign

UASG Working Groups

UASG Working Groups	Role
Technology Working Group	Oversees remediation work on standards, programming languages, tools, and development platforms.
Email Address Internationalization (EAI) Working Group	Oversees engagement with email software and service providers to make them EAI ready.
Measurements Working Group	Identifies UA readiness gaps in tools and technologies.
Communications Working Group	Develops communication strategy and oversees its execution in collaboration with other working groups.
Local Initiatives Working Group	Conducts national or regional UA awareness, training, and stakeholder engagements.
UA Ambassadors	Organize training and outreach at national and regional levels.

UASG Working Groups

UASG Working Groups	Leadership
Technology Working Group	Satish Babu (Chair) Dessalegn Yehuala (Vice-Chair)
Email Address Internationalization (EAI) Working Group	Mark Svancarek (Chair) T. Santhosh (Vice-Chair)
Measurements Working Group	Dennis Tan Tanaka (Chair)
Communications Working Group	Rahul Gosain (Chair) Lilian Ivette De Luque Bruges (Vice-Chair)

Check the website for leadership profiles: <https://uasg.tech/about/people/>

UA Local Initiatives

China Managed by Internet Society of China (ISCO)	Wei Pei Head of China UA Initiative and Chinese Domain Names Initiative
CIS-Eastern Europe Led by the Coordination Center for .RU / .PΦ	Maria Kolesnikova Chief Analyst, Project Lead and External Relations
India Led by The Federation of Indian Chambers of Commerce & Industry (FICCI)	Sarika Gulyani Director and Head-ICT, Digital Economy
Thailand Led by Thai Network Information Center Foundation (THNIC)	Photchanan Ratanajaipan, PhD. Executive Director

Main Categories Affected by UA Readiness

Domain Names

- New short top-level ASCII domain names: example.sky
- New long top-level ASCII domain names: example.engineering
- Internationalized Domain Names (IDNs): คน.ไทย

Email Addresses

- ASCII@ASCII (new and long TLD): ekrem@misal.istanbul
- ASCII@IDN: marc@société.org
- Unicode@ASCII: 测试@example.com
- Unicode@IDN: όνομα@παράδειγμα.eu
- Unicode@IDN; right-to-left scripts: ای-میل@مثال.موقع



Accept



Validate



Process

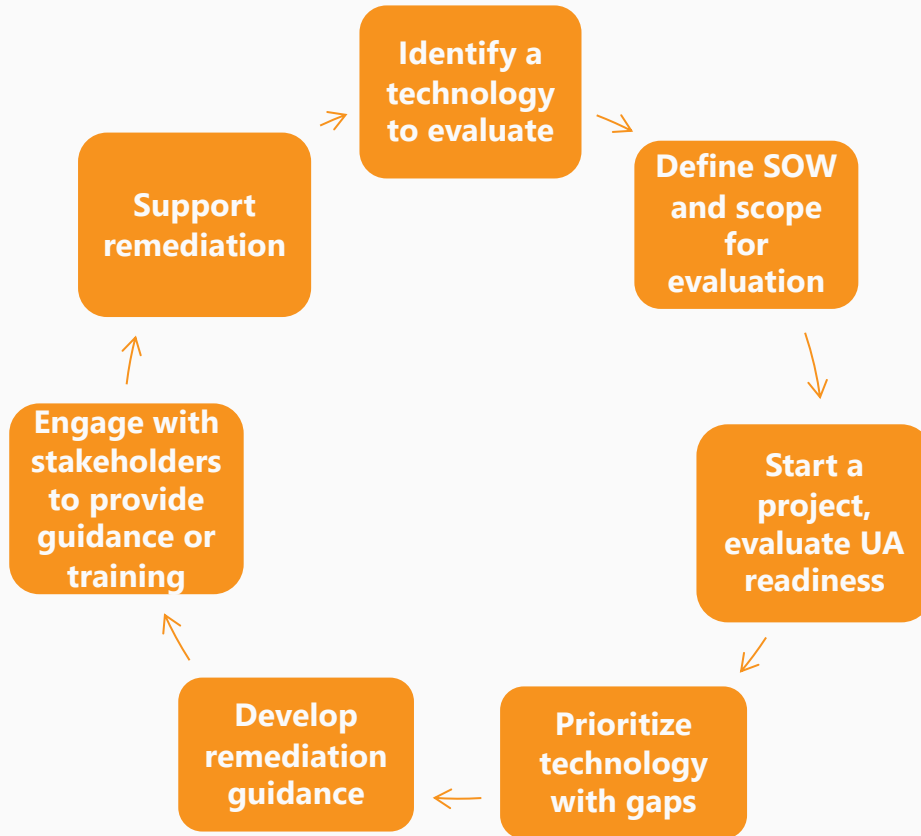


Store



Display

UA Remediation Cycle



UA Readiness in the Technology Stack

Applications and Websites

- Wikipedia.org, ICANN.org, Amazon.com, custom websites globally.
 - PowerPoint, Google Docs, Safari, Acrobat, custom apps.
-

Social Media and Search Engines

- Chrome, Bing, Safari, Firefox, local (e.g. Chinese) browsers.
 - Facebook, Instagram, Twitter, Skype, WeChat, WhatsApp, Viber.
-

Programming Languages and Frameworks

- JavaScript, Java, Swift, C#, PHP, Python.
 - Angular, Spring, .NET core, J2EE.
-

Platforms, Operating Systems and System Tools

- iOS, Windows, Linux, Android, app stores.
 - Active Directory, OpenLDAP, OpenSSL, Ping, Telnet.
-

Standards and Best Practices

- IETF RFCs, W3C HTML, Unicode CLDR, WHATWG.

Universal Acceptance (UA) 2019-2020

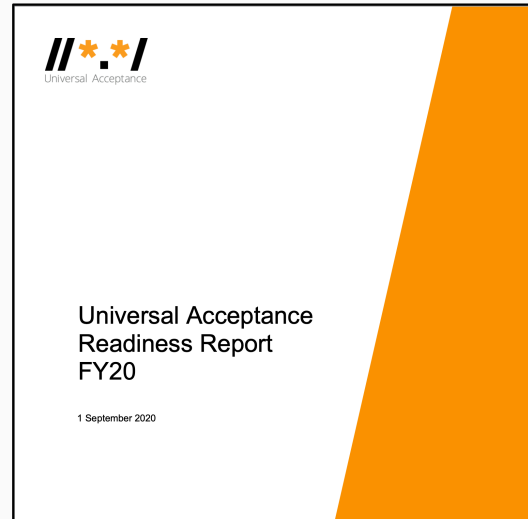


Universal Acceptance

UA Readiness Report FY20

- Published first annual UA Readiness Report for FY20.
- The report highlights:
 - UA/EAI annual activities.
 - National and regional initiatives.
 - Reports and publications.
 - Events, outreach, and trainings.
 - UA technology status and gap analysis.
 - Progress on technology readiness.

The report is available online at <http://UASG.tech> website.





Universal Acceptance

UA Readiness in 2020

- At a Glance -



9.7%

of email servers are potentially configured to support email addresses in local languages and scripts.



11%

of the top 1000 websites globally support email addresses in Arabic and Chinese.



98.3%

of the top 1000 websites globally support email addresses with short top-level domains.



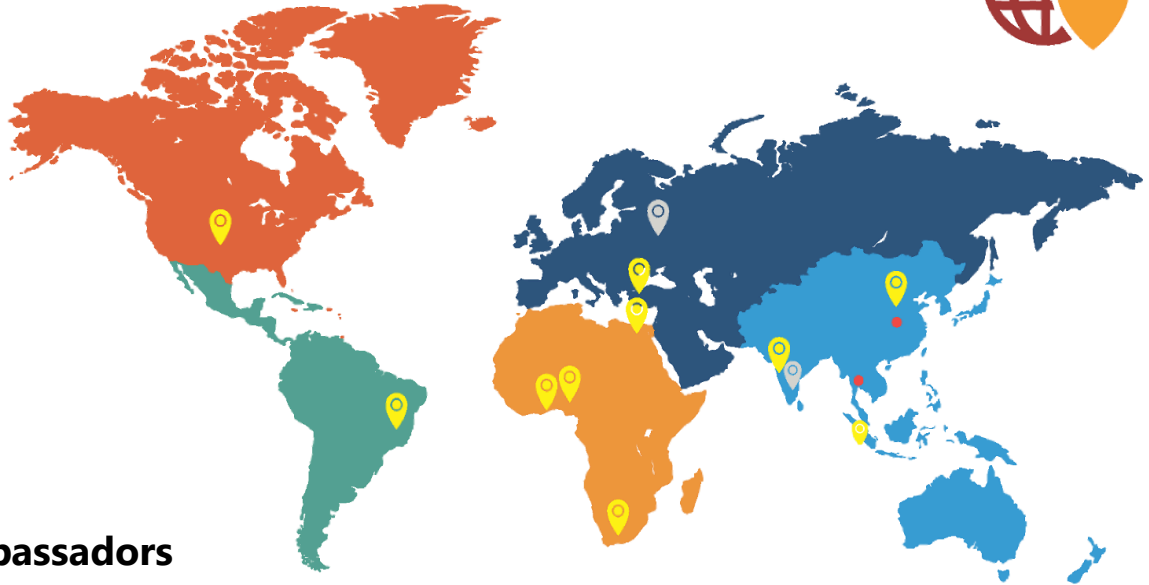
测试@普遍接受-测试.世界

مشرف@اختبار-سجل.مصر

όνομα@παράδειγμα.eu

The report is available online at <http://UASG.tech> website.

UA Around the World





UA Ambassadors

- Benin
- Brazil
- China
- Egypt
- India
- Nigeria
- South Africa
- Turkey
- USA

UA Local Initiatives

Commonwealth of Independent States and Eastern Europe (CIS-EE)
(Armenia, Belarus, Georgia, Latvia, Russia, Serbia, Ukraine)
India

-  China (Recently established)
-  Thailand (Recently established)

UA Outreach and Engagements

- Local Stakeholders Engagement
- UA Awareness and Capacity Building Events



UA Ambassador Program

The UASG Ambassador Program was created in 2018 to recruit industry leaders and UA experts who are committed to raising awareness around UA and EAI.

2020 New UA Ambassadors

Cengiz Acarturk – Turkey
Malick Alassane – Benin
Mark Elkins – South Africa
Aman Masjide – India
Abdulkarim Ayopo Oloyede – Nigeria
Sushanta Sinha – India

Current UA Ambassadors

Harish Chowdhary – India
Mark W. Datysgeld – Brazil
Abdalmonem Galila – Egypt
John Levine – USA
Zhijiang Liu – China
Xiucheng Wu (Marvin Woo) – China
Yangyi Wu (Walter Wu) – China

UA Local Initiatives

The aim is to interact with local stakeholders to promote UA readiness through local community outreach and engagement, and technical training.

Active Local Initiatives

- Commonwealth of Independent States and Eastern Europe (CIS-EE): Armenia, Belarus, Georgia, Latvia, Russia, Serbia, Ukraine.
- China
- India
- Thailand

Local Initiatives under review

- Turkey
- Middle East
- Africa

Help us establish new UA Local Initiatives:

- Use the [Local Initiative Charter](#) and proposal template available on [UASG.tech](#).
- Please contact us at info@uasg.tech if you are interested in starting a local initiative in your country or region.

UA Awareness and Capacity Building Events

UA Awareness

- 21 awareness sessions have been organized since June 2019 (local, national, and international events).

UA Train-the-Trainer Program

- 40+ volunteers from 17 countries have been trained to conduct trainings.

Training	Audience	Description	Duration
UA Technical Overview	<ul style="list-style-type: none">– CIOs– IT managers– System administrators– Software developers	An overview about UA and EAI readiness issues.	1.5 hours
Configuring Email Address Internationalization (EAI)	<ul style="list-style-type: none">– Email administrators– System administrators– IT managers	Technical configuration and setup of EAI supported email service.	3 hours
UA for Java developers	<ul style="list-style-type: none">– Software developers– Software project managers	Develop best current practices for UA compliant Java applications.	3 hours

Let us know if you would like to volunteer: info@uasg.tech

UASG Project Development Process

Working group develops a Statement of Work (SOW).



SOW reviewed by working group chairs and approved by UASG.



SOWs are published and contractors invited to submit proposals.

UA Measurement Working Group

Dennis Tan Tanaka



Universal Acceptance

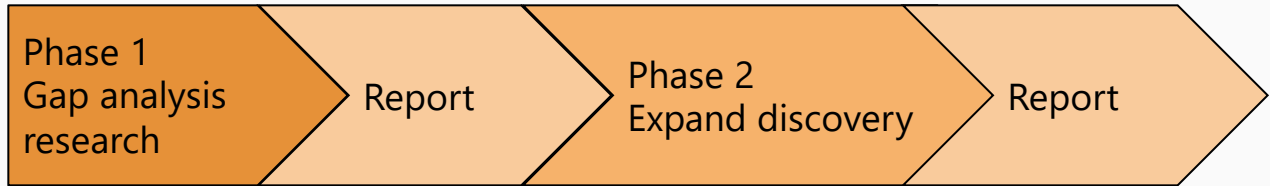
Working Group Approach to UA-readiness Gap Analysis

Typical approach to new applications:

Phase	Scope	Objectives
Phase 1 Discovery	Small: Top one or two subject applications.	<ol style="list-style-type: none">1. Develop a test plan with typical implementation in a controlled setting with small number of variables (e.g. platform, operating system, top application in the subject matter).2. Measure UA-readiness of a typical implementation of the subject matter by applying the Readiness Framework (UASG026).
Additional Discovery(optional)		
Phase 2 Expanded Discovery (Optional)	Large: Several applications within reasonable limits.	Augment knowledge about subject matter by applying the test plan (developed in the Discovery Phase) to a larger set of test subjects.
Expand Learning (optional second, third, n th set)		

UA Readiness of Content Management Systems Example

Pilot project, followed by comprehensive project.



Small scope



UAM-WG Report:

Recommendations:

- Technical Training
- Address deficiencies

Larger scope



UAM-WG Report:

Recommendations:

- Technical Training
- Address deficiencies



Accept



Validate



Process



Store



Display

2020-2021 Project List

Grouping	Work Item	End-User Impact Score	Confidence Level of Completing within Fiscal Year
Group 1	Social media (e.g. Facebook, Twitter, Wechat, Whatsapp, etc.)	14.0	Very High 86% - 100%
	Browsers: Worldwide and selected markets (e.g. China, Russian Federation, other?)	13.5	
Group 2	Websites: augment with email acceptance analysis (i.e. reasons for not-acceptance, test transport of email), and purpose break down (e.g. e-commerce, media, etc.)	11.0	High 56% - 85%
	Second phase of Content Management Systems (CMS). This project is contingent to reviewing the results of phase 1 (tentatively Q1 2021)	11.0	
	OS authentication in Device (e.g. apple ID)	10.0	
Group 3	Research impact on UA about usage of authentication APIs (e.g. Login with Facebook, https://tools.ietf.org/html/rfc6749)	8.0	Low 36% - 55%
	Second phase open-source applications. This project is contingent to reviewing the results of phase 1 (tentatively Q4 2020)	7.0	
Group 4	Certificates	4.0	Very Low 0% - 35%
	Common operating system utilities	3.0	

End-User Impact Score = End User Visibility + Number of Users Impacted + Critical Path
Some gap analysis reviews are undertaken by the Tech and EAI groups directly.

2020-2021 UA Measurement Working Group Roadmap

Q3 2020	Q4 2020	Q1 2021	Q2 2021
<p>Start Group 1 2020-2021 projects: Social Media and Browsers</p> <p>Interim report Applications in Open Source Code</p>	<p>Start Group 2 2020-2021 projects: Websites, CMS Phase 2, Devices</p> <p>Final Report Applications in Open Source Code</p> <p>Interim/Final Report Content Management System, Phase 1</p>	<p>Interim/Final Reports Social Media and Browsers</p> <p>Start Group 3 2020-2021 Projects: User Auth API, Open Source Phase 2</p>	<p>Interim/Final Reports Websites, CMS Phase, Devices</p> <p>Start Group 4 2020-2021 Projects: Certificates, Operating Systems</p>

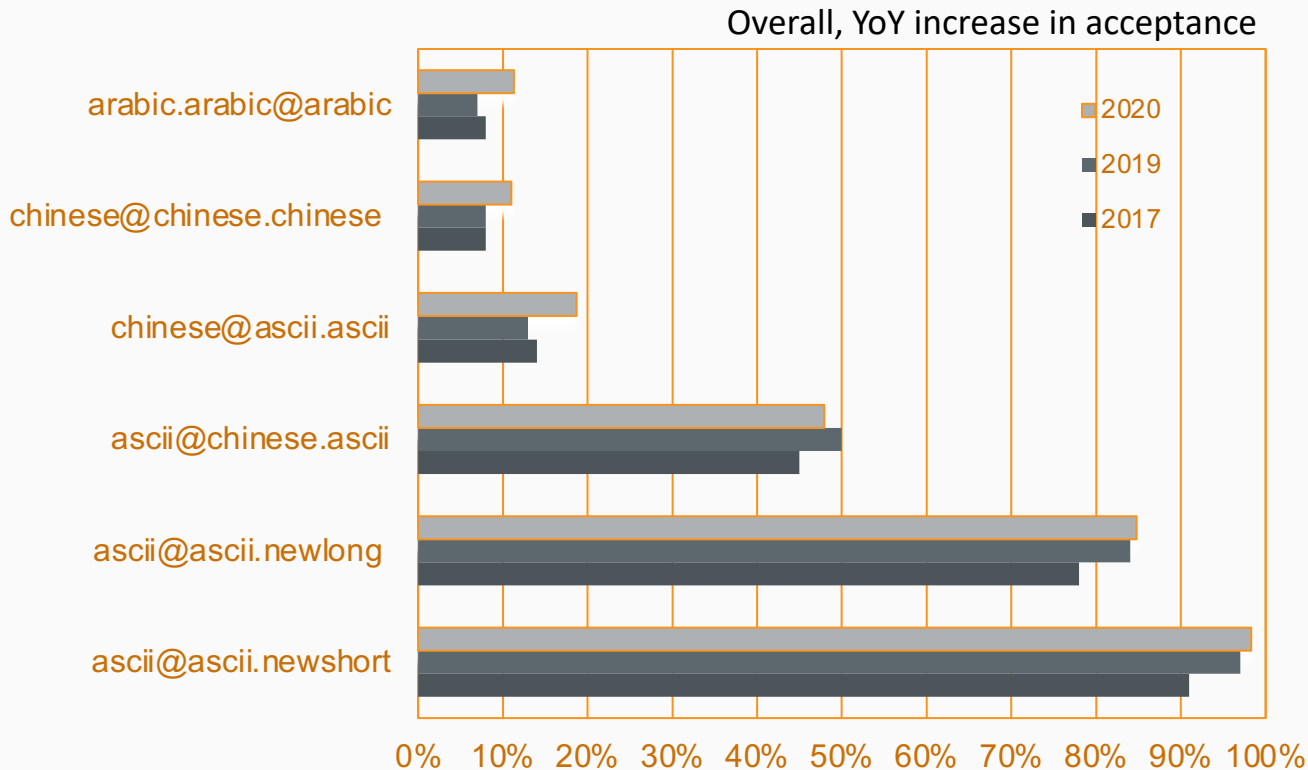
Email Address Internationalization (EAI) Working Group

Mark Svancarek



Universal Acceptance

Acceptance of Email Addresses by Top 1000 Websites Globally



Email Systems Stack for UA Consideration

Webmail Platforms

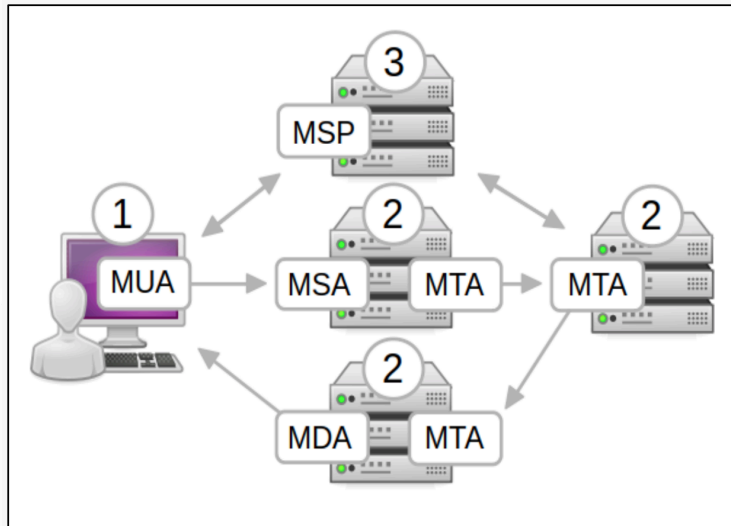
- Gmail
- Coremail
- Yandex

MXAs

- Axigen
- Courier
- Dovecot
- Postfix
- Zimbra

Components of Email Systems

- Mail User Agent (MUA)
- Mail Submission Agent (MSA)
- Mail Transfer Agent (MTA)
- Mail Delivery Agents (MDA)
- Mail Service Provider (MSP)



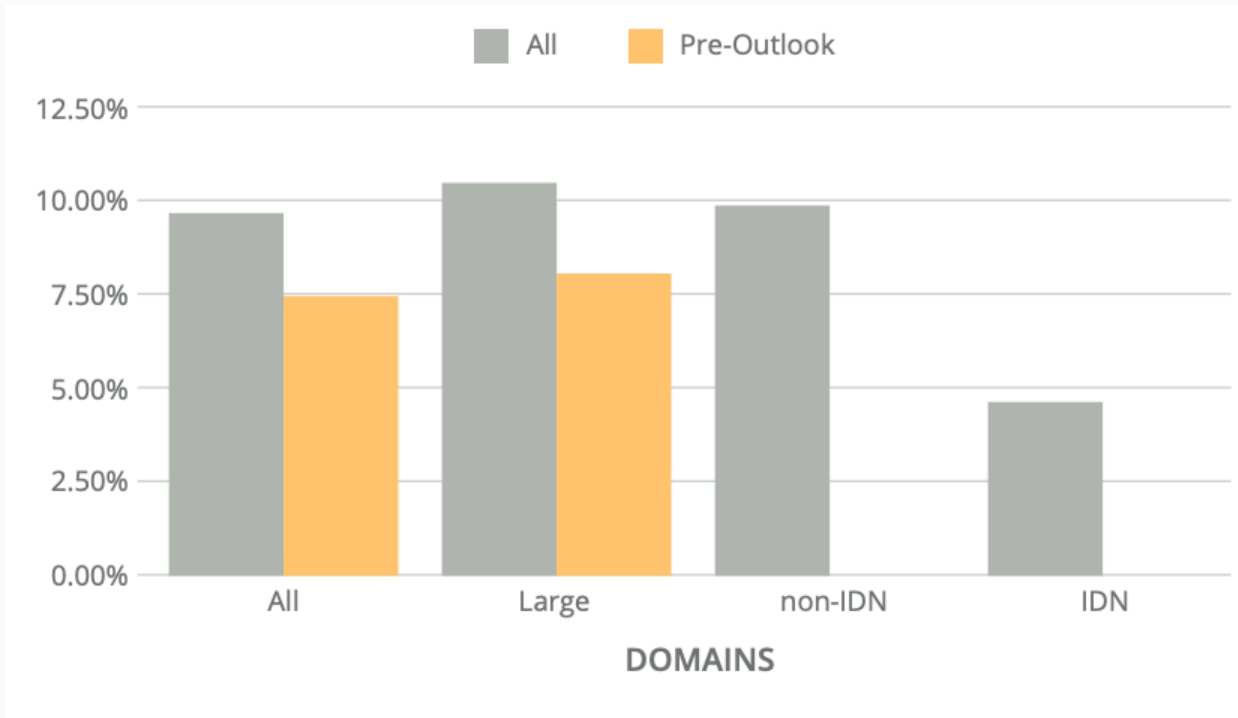
Mail User Agents (MUA) EAI Readiness Testing 2020

	Apple Mail	Thunderbird	Outlook	Yandex	Coremail
Client receives messages from EAI addresses	Yes	Sometimes	Yes	No	Yes
Client sends messages to EAI addresses	No	No	Yes	Sometimes	No
Unicode addresses displayed in Unicode (sent and received)	Yes (received)	Yes (received)	Mostly	Some (displays only local part)	No
Address book handles EAI addresses normally (save, send, search)	Some	Yes	Mostly	Yes	Yes
Mailto links of EAI addresses handled normally (sent and received)	No	Sometimes	Yes	Yes	No
Subject line can be Unicode	Yes	Yes	Yes	Yes	Yes
Folders can be named with Unicode	Yes	Yes	Yes	Yes	NA
Message headers are Unicode where appropriate	NA	No	No	No	NA
EAI addresses can be set up to receive and send mail using IMAP	No	No	Sometimes	No	No
EAI addresses can be set up to receive and send mail using POP	No	No	Sometimes	No	No
Username can be Unicode	No	No	Sometimes	No	No
Server names and domains can be Unicode	No	No	Yes	No	No
Server names and domains can be A-label	No	No	No	NA	NA

Webmail Services EAI Readiness Testing 2020

	Roundcube	MS Outlook.com	Coremail	Yandex
Client receives messages from EAIs	Yes	Yes	Yes	No
Client sends messages to EAIs	Yes	Yes	No	Sometimes
Unicode addresses displayed in Unicode (sent and received)	Mostly	Yes	Yes	Yes
Address book handles EAIs normally (save, send, search)	Yes	Sometimes	Yes	Yes
Mailto links of EAIs handled normally (sent and received)	No	Yes	Sometimes	Yes
Subject line can be Unicode	Yes	Yes	Yes	Yes
Folders can be named with Unicode	Yes	Yes	Yes	Yes
Message headers are Unicode where appropriate	Sometimes	No	No	No
EAIs can be set up to receive and send mail using IMAP	Yes	No	No	No
EAIs can be set up to receive and send mail using POP	NA	No	No	No
Username can be Unicode	Yes	No	No	No
Server names and domains can be Unicode	Yes	No	No	No
Server names and domains can be A-label	Yes	No	No	No

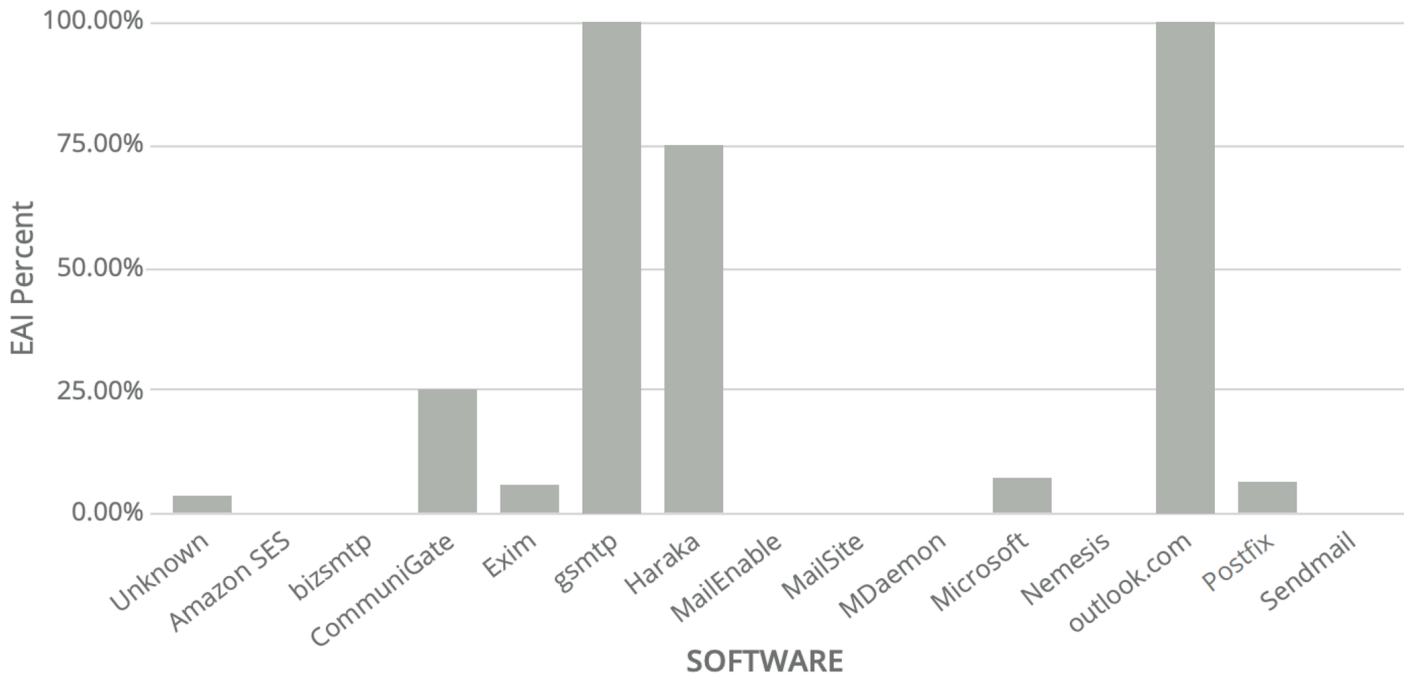
Email Servers Configured to Support EAI in 2019



Test your email server for EAI support: <https://uasg.tech/eai-check/>

EAI Readiness of Mail Servers

Server % EAI Ready



EAI Working Group - FY21 Priorities

- Focus on identification of gap in relevant technology supporting EAI, remediation of the technology, and providing training materials for email software and service providers to promote EAI support and deployment.
- Publishing: The Best Practices for Naming Internationalized Email Mailboxes Report.
- New project: UA education outreach to developer communities using technical Q&A sites (e.g., StackOverflow, Serverfault, GitHub, etc.)
 - The objective is to engage with developer communities by promoting UA and EAI issues and responding to existing EAI questions (explain the problems and how to fix them)
- Remediation for EAI Services and Tools
 - The working group has started discussing the options and approaches to advance and promote EAI acceptance.

FY21 Projects

Completing the ongoing project: EAI Tools Evaluation

Completing the ongoing project: Inventory of EAI Tools and Services

UA Technology Working Group

Satish Babu



Universal Acceptance

UA Technology Working Group - FY21 Priorities

- Focus on remediation of standards and technology and developing technical training for this purpose.
 - Stakeholders: technology enablers and technology developers.
- New project: UA Readiness Evaluation of Standards and Best Practices
 - Research the different technology standards organizations to identify the standards and best practices that directly or indirectly impact the UA readiness of domain names and email addresses.
 - WHATWG, W3C, IETF, Unicode Consortium, etc.
- Published: UA Readiness for Programming Languages and Frameworks Report (UASG018A)
 - The report describes the results of verifying the UA readiness of C, C#, Go, Java, Javascript, Python3, Rust and frameworks.

FY21 Projects

Develop strategy and undertake remediation of technology prioritized.

Prioritize and develop training materials.

UA Readiness of Programming Languages and Frameworks

Language	Lib Name	Compliance on dataset (%)	Datasets
c	libcurl	84.3	HEs
c	libidn2	95.2	LA2U ,LU2A
csharp	mailkit	84.3	HEs
csharp	microsoft	83.9	LA2U ,LU2A
go	idna	79	LA2U ,LU2A
go	mail	100	HEs
go	smtp	19.6	HEs
java	commons-validator	85.5	HEs ,HDns
java	guava	77.8	HDns
java	icu	93.5	LA2U ,LU2A
java	jakartamail	82.4	HEs
java	jre	71	LA2U ,LU2A

Legend (UASG018A)

UA-ready

UA-ready but
developer needs to
be careful

Not UA-ready

UA Readiness of Programming Languages and Frameworks

Language	Lib Name	Compliance on dataset (%)	Datasets
js	idna-uts46	85.5	LA2U ,LU2A
js	nodemailer	84.3	HEs
js	validator	94.2	HEs ,HDns
python3	django_auth	48.1	HEs ,HId
python3	email_validator	86.3	HEs
python3	encodings_idna	67.7	LU2A ,LA2U
python3	idna	100	LA2U ,LU2A
python3	smtplib	84.3	HEs
rust	idna	87.1	LA2U ,LU2A
rust	lettre	7.8	HEs

Legend (UASG018A)

UA-ready

UA-ready but
developer needs to
be careful

Not UA-ready

UA Communications Working Group

Rahul Gosain and Lilian Ivette De Luque Bruges



Universal Acceptance

UA Communications Working Group - FY21 Priorities

- Develop a communication strategy for the UASG and oversee its execution in collaboration with the ICANN org team.
- UA case studies:
 - Showcase the successful implementations of EAI/IDN email services.
 - Provide lessons learned and best practices in an organization's journey to be UA-ready.
- New project: Redesign UASG.tech website.

FY21 Projects

Publish 2-3 case studies focusing on successful EAI implementation and UA readiness experiences (led by ICANN communications team and UA Program).

Provide support and encouragement for Global and Regional Internet Governance Forums (IGFs) and Schools of Internet Governance (participated in IGF and DC-DNSI).

UA Reports and Publications

Document Title	Summary	Language
Introduction to UA	An overview of the baseline concepts of Universal Acceptance and an introduction to advanced topics such as right-to-left scripts, the Bidi algorithm and Normalization.	Arabic, Chinese, English, French, Russian, Spanish
EAI: Evaluation of Major Email Software and Services	Provides details on the Discovery and Analysis phase of the EAI Evaluation project.	English
EAI: Evaluation of Major Email Software and Services	Provides details on the Discovery and Analysis phase of the EAI Evaluation project.	English
Global Evaluation of Websites for Acceptance of E-mail Addresses in 2019	Evaluate UA compliance of the top 1K websites in the world by sampling the practices & different development approaches to the e- mail field in forms on the Web and testing them in practice.	Arabic, Chinese, English, French, Russian, Spanish

UA Reports and Publications

Document Title	Summary	Language
UA Readiness Framework	Technical guide that provides a framework for scoping UA conformance work on software applications, focusing on the major components of an application to help developers more easily problem solve.	English, Russian
Country-based Evaluation of Websites for Acceptance of Email Addresses in 2020	A follow up to testing done in 2018 and 2019 (UASG025), this document evaluates the acceptance rates of internationalized email addresses by websites in different countries.	English
UA Readiness of the Programming and Framework	This document describes the results of verifying the UA readiness of C, C#, Go, Java, Javascript, Python3, Rust and frameworks, including the testing of internationalized email.	English

Questions and Answers (Q&A)

Get involved!

- Follow, share, like and engage with the UASG on social media, and use the UASG hashtag in relevant posts: #Internet4All
 - Twitter: [@UASGTech](https://twitter.com/UASGTech)
 - LinkedIn: <https://www.linkedin.com/company/uasgtech/>
 - Facebook: <https://www.facebook.com/uasgtech/>
- Join the UA Discuss group: ua-discuss@icann.org
- Report a problem if you find an application or webpage that is not UA-ready: <https://uasg.tech/global-support-center/>

спасибо 谢谢
GRACIAS

THANK YOU

ありがとうございました MERCI

DANKE धन्यवाद

شُكْرًا **OBRIGADO**