

Briefing – UASG & ICANN Board

ICANN 63 – 24 October 2018



Universal Acceptance

UA in a Nutshell

“Universal Acceptance (UA) is essential for the continued expansion of the Internet as it ensures that new domain extensions and email addresses can be used by all Internet-enabled applications, devices and systems.”

What's Changed

- * More Top Level Domains (TLDs) Available
- * No longer just two or three characters
- * No longer just in ASCII
- * List of TLDs is no longer static. New names being added
- * Mailbox names also no longer in ASCII

.aaa

.accountant

.amex

.asia

.ভারত

.公益

.MOCKBA

🇷🇺.

.フアツション

.كوم

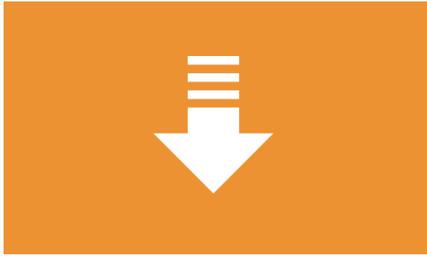
Anatomy of an email address

username@example.com

测试5@普遍接受-测试.世界

- * *Username/ 测试5*
 - * *Mailbox name*
 - * *Can be in ASCII or Unicode*
- * *Second level domain name (example/ 普遍接受-测试)*
 - * *Can be ASCII or Unicode.*
 - * *Unicode can be represented as Unicode or Punycode*
- * *Top Level Domain name (.com/ .世界)*
 - * *Can be ASCII or Unicode*
 - * *Unicode can be represented as Unicode or Punycode*
 - * *Can be 2 to 63 characters long*
 - * *Can ONLY be from an authoritative list that is dynamic and has more than 1,000 choices*

Five Verbs to UA Readiness



Accept



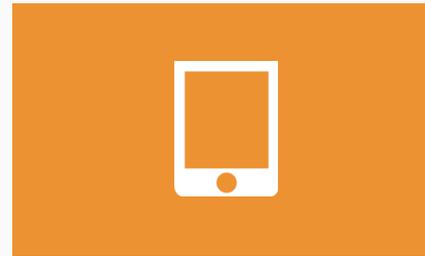
Validate



Store



Process



Display



Universal Acceptance is achieved when all domain names and all email addresses work equally.

- Universal Acceptance (UA): All TLDs, including new short, new long & IDNs working just like the legacy TLDs of .com, .org, .net
- Email Address Internationalisation (EAI): includes IDNs in the domain name and/or non-ASCII characters in Mailbox Names

Let's See...

Try to send an email to:

kōrero@ngāpukapuka.nz

*(on a iphone or mac, hold down the 'o' to choose ō and hold down the 'a' key to choose ā)
It's harder on a PC.*

Universal Acceptance Steering Group

- * A independent community initiative supported by ICANN
- * Volunteer Leadership
 - * Chair: Ram Mohan
 - * Vice-Chairs: Edmon Chung, Rich Merdinger, Mark Svancarek
 - * Group Coordinators: Jiankang Yao, Ajay Data, Christian Dawson, Lars Steffen
- * 307 participants from more than 171 organisations
- * Support from ICANN
 - * Michaela Quinzy, Gwen Carlson, Cyrus Namazi particularly helpful
 - * GSE Teams reaching to their communities

How big an issue is it?

- * In a test of the world's 1,000 most popular websites, just 8% accepted all our test cases.
- * In a test of social media services, most did not treat all domain names the same and none behaved as expected in all circumstances
- * Email software and services are currently being tested – Just two major players (gmail & Microsoft) are at least partly ready. BUT: There is no automatic 'downgrading' option when legacy systems are encountered.

Who has to fix it?

- * Every website, every email platform, every application that use an email address or domain name has to be reviewed and fixed.
- * It is not a centralised fix
- * More distributed than IPv6 or DNSSEC deployment
- * Most remediation effort is relatively quick – it's getting it in the workstream that's hard.

Is it hard?

- * Getting an application UA or EAI Ready – Generally not hard
 - * A data dictionary is useful/could be a side benefit
- * Getting interest is challenging
- * Generating demand without generating alarm

What has the UASG done?

- * Identified Target Audiences: Doers, Directors, Influencers
- * Created Documentation
 - * C*O, CIO, Systems Architect, Developer
 - * Universities & Training Institutes
- * Performed Studies
 - * It's a big problem (Just 8% in one study, 3% in another)
 - * Browsers are pretty OK
- * Facilitated awareness and action in Email Community
- * Created Logging facility
- * Started Fixing open source programming language libraries & utilities
- * Worked with ICANN's GSE Team to spread the word

Example Documentation

- * UASG007: Introduction to Universal Acceptance
- * UASG009: Quick Guide to Tender and Contractual Documents
- * UASG015: Blueprint for CIOs – Internet Industry Edition

Financials

Year	Budget	Actual
FY18/19	\$1,098,000	
FY17/18	\$1,423,000	\$468,919
FY16/17	\$1,304,500	\$641,814
FY15/16	\$774,750	\$269,858

The UASG is nearing the end of its beginning

- Documentation is nearly complete
- One more major study (email) underway
- Additional sector studies planned
- Measurements being repeated
- Programming Language Libraries & Utilities review and remediation still underway

How can the Board help?

- * Keep Universal Acceptance as a strategic board priority
- * Integrate UA into an organisational operational priority
- * Include UA in presentations that Board members and senior staff give
- * Get your own organisations UA Ready

Next Steps...

- * Read the documents at www.uasg.tech/documents
 - * UASG003 – Fact Sheet
 - * UASG005 – Quick Guide
 - * UASG007 – Introduction to Universal Acceptance
 - * UASG011 – FAQs
- * Subscribe to the UASG Discussion list www.uasg.tech/subscribe
- * Get your own systems UA Ready
- * Spread the word...

Q&A

Generic UASG Follows



Our Target Audiences

Doers

Developers & Systems Architects

Directors

CIOs and senior IT Management

Influencers

C suite, Thought Leaders, Government Ministers and Officials*

Why Bother

- * Enablement for culture, society and economics
- * Responsibility to comply with standards
- * UA results in better User eXperience (UX)
- * Provide uninterrupted support for users of new domain names
- * Reduce customer support burden

Principles of Universal Acceptance





The process by which an email address or domain name is received as a string of characters from a user interface, file or API.

UASG Recommendations

- * User interface elements must support:
 - * Unicode.
 - * Strings up to 256 characters.
- * ASCII Compatible Encoded text ("Punycode") in place of Unicode.
 - * Unicode shown by default.
 - * Punycode text shown *only* when it provides a benefit.

Validate



The process by which an email address or domain name – received or emitted – is checked for syntax correctness.

UASG Recommendations

- * Easiest way to ensure all valid domain names are accepted.
- * Should not occur unless required. If yes:
 - * Verify TLD against authoritative table.
 - * Query domain name against DNS.
 - * Require repeated entry of email address.
 - * Validate characters - no “disallowed” code points.
 - * Limit to few, whole-label rules defined in RFCs
 - * If string contains '。' convert to '。'



Store

The long-term and / or transient storage of domain names and email addresses.

UASG Recommendations

- * Apps / services should support Unicode
- * Information stored in UTF-8 whenever possible
- * Consider end-to-end scenarios before converting between A-Labels & U-Labels
 - * Consider storing in both formats
- * Clearly mark email addresses and domain names during storage



Occurs whenever an email address or domain name is used by an application or service to perform an activity, or is transformed into an alternate format.

UASG Recommendations

- * Check code points not defined when application / service was created – shouldn't "break" user experience.
- * Use supported Unicode-enabled APIs.
- * Use latest IDNA Protocol & Tables documents for Internationalized Domain Names.
- * Process in UTF-8 wherever possible.



Occurs whenever an email address or domain name is used by an application or service to perform an activity, or is transformed into an alternate format.

UASG Recommendations

- * Ensure numbers are handled as expected
- * Treat ASCII numerals & Asian ideographic number representations as numbers
- * Upgrade apps & servers/services together
- * Perform code reviews to avoid buffer overflow attacks



Display

Display occurs whenever an email address or a domain name is rendered within a user interface.

UASG Recommendations

- * Display all Unicode code points supported by underlying operating system.
- * When developing app/service, or operating a registry, consider languages supported.
- * Convert non-Unicode data to Unicode before display.
- * End user should see "everyone.みんな" vs. "everyone.xn--q9jyb4c."

Display (continued)



Display occurs whenever an email address or a domain name is rendered within a user interface.

UASG Recommendations

- * Display Unicode by default
- * Use Punycoded text *only* when it provides a benefit
- * Consider that mixed-script addresses will become more common
- * Use Unicode IDNA Compatibility Processing to match user expectations
- * Be aware of unassigned & disallowed characters

Tools & Resources for Developers

Authoritative Tables:

- * <http://www.internic.net/domain/root.zone>
- * <http://www.dns.icann.org/services/authoritative-dns/index.html>
- * <http://data.iana.org/TLD/tlds-alpha-by-domain.txt>
- * See also SAC070: <https://tinyurl.com/sac070>

Internationalized Domain Names for Applications:

- * Tables: <https://tools.ietf.org/html/rfc5892>
- * Rationale: <https://tools.ietf.org/html/rfc5894>
- * Protocol: <https://tools.ietf.org/html/rfc5891>

Unicode:

- * Security Considerations: <http://unicode.org/reports/tr36/>
- * IDNA Compatibility Processing: <http://unicode.org/reports/tr46/>

Universal Acceptance
Steering Group info &
recent developments:
www.iasg.tech