

# Universal Acceptance – An Update

Don Hollander / GDD Summit / May 2016



Universal Acceptance

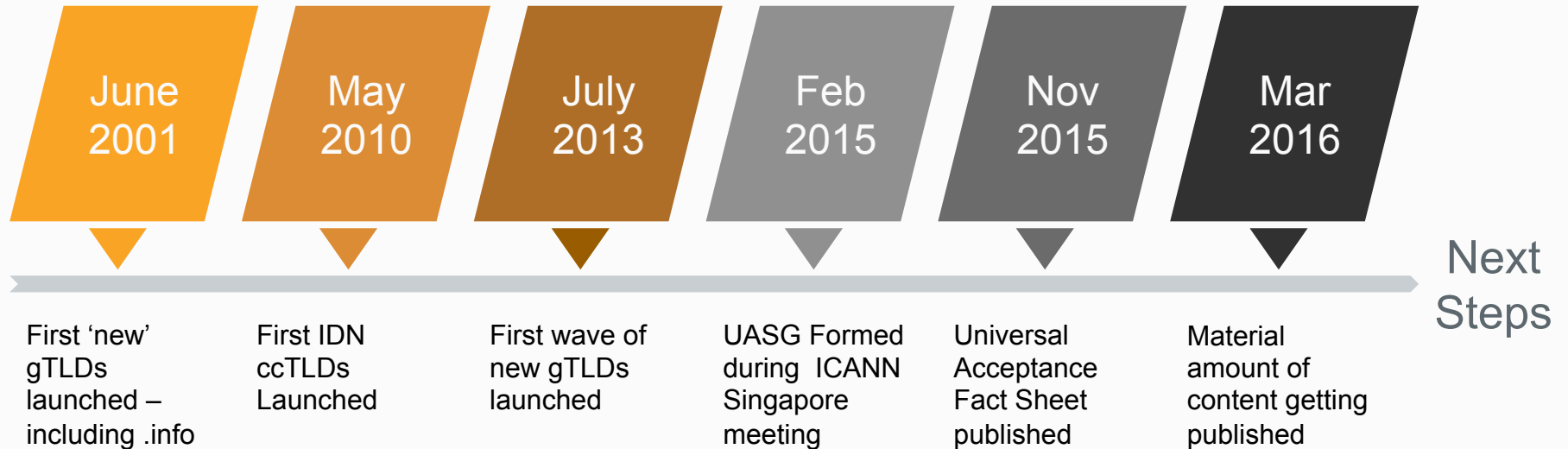
# Universal Acceptance

**“Universal Acceptance is the state where all valid domain names and email addresses are accepted, validated, stored, processed and displayed correctly and consistently by all Internet-enabled applications, devices and systems.”**

# What we're doing:

- Creating Documentation – mostly technical
- Creating Test Cases
- Fixing Programming Languages
- Measuring Results
- Facilitating Cooperation
- Reaching Out

# Timeline: Universal Acceptance Issues



The Universal Acceptance issue has been around for a very long time, and yet no one was collectively raising awareness or providing tools and experience. The UASG has formed to address this.

# Agenda

- \* Organisation Structure
- \* Target Audiences
- \* Documentation Produced
- \* Programming Languages
- \* EAI
- \* Measurements
- \* Communications Strategy
- \* The Internet Industry
- \* UA in China
- \* UA in India
- \* Your Role
- \* Next Steps
- \* Q&A

# UASG – Universal Acceptance Steering Group

- Chair: Ram Mohan
- Vice-Chairs: Christian Dawson, Edmon Chung, Rich Merdinger
- Shifted from Supported volunteers to Supporting volunteers
- Two project groups: Community Outreach & EAI
- Strong Support from ICANN

# Documentation Produced

- \* UASG001 – Knowledge Base. *Who to contact for Browser problems*
- \* UASG002 – Webmaster Engagement Notes – 7 Languages
- \* UASG003 – Fact Sheet – Aimed at non-Technical people
- \* UASG004 – UA Use Cases. *The Examples we'll be using to test*
- \* UASG005 – Quick Guides. Available in English, Russian, Arabic, Chinese & German, soon in French, Spanish, Portuguese and German
- \* UASG006 – Relevant RFCs

Documents found at [uasg.tech](http://uasg.tech) – Documents Tab

# Documentation Produced (cont)

- \* UASG007 – An Introduction to Universal Acceptance – *Aimed directly at the Developers and other Technical People. ~18,000,000!*
- \* UASG008 – A Model for Local Engagement
- \* UASG009 – Quick Guide for Contracts & Tender Documents
- \* UASG010 – Quick Guide to Linkification



# 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

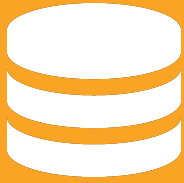
- \* User interface elements must support:
  - \* Unicode.
  - \* Strings up to 256 characters.
- \* ASCII Compatible Encoded text (“Punycode”) in place of Unicode.
  - \* Unicode shown by default.
  - \* Punycode text shown *only* when it provides a benefit.



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 ‘.’

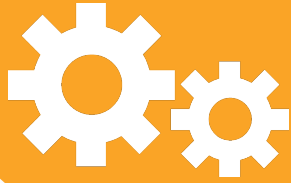


# Store

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

## UASG Recommendations

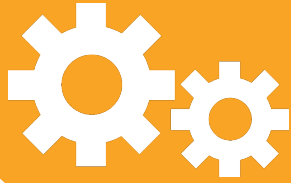
- \* Apps / services should support Unicode
- \* Information stored in UTF-8 whenever possible
- \* Consider end-to-end scenarios before converting between A-Labels & U-Labels
  - \* Consider storing in both formats
- \* Clearly mark email addresses and domain names during storage



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

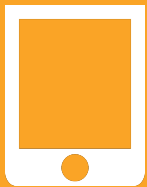
- \* Check code points not defined when application / service was created – shouldn't “break” user experience.
- \* Use supported Unicode-enabled APIs.
- \* Use latest IDNA Protocol & Tables documents for Internationalized Domain Names.
- \* Process in UTF-8 wherever possible.



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

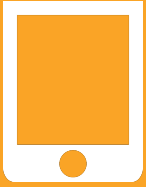


# Display

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 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.uasg.tech](http://www.uasg.tech)



# Programming Languages

- Four Teams working in Parallel to evaluate the UA Readiness of major open source programming languages – and fix them!
- Aiming for first results to be ready by ICANN57

# EAI

- What is it?
  - Email support for IDNs
  - Email support for [Unicode@example.tld](mailto:Unicode@example.tld)
- What are we doing?
  - Test Environment
  - Coordinating "Players"
- Identifying Implementation Decisions

# Measurement

- Checking to see if most popular websites can accept a variety of email addresses for registration.
- Builds on work of Donuts

# Communications Strategy

## **UMBRELLA MESSAGE:**

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.

# SUPPORTING MESSAGES :

UA provides a gateway to the next billion...

Businesses have a responsibility...

Better UA => Better UX

# Target Audiences

People who can MAKE this happen

Developers & Systems Architects & Consultants/Contracting Firms

People who can DIRECT this to happen

CIOs

People who can INFLUENCE this to happen

C\* Suite, Board Members, Government Officials, Ministers

Consultants, Media, Industry Influencers



# UASG Going Forward...

- White Paper
- Communication Pilots
- Encouraging UA Practices in big consulting firms  
Getting the IDNA & Unicode engagement systems fixed.
- EAI



# The Internet Industry

- Registry/Registrar Technical Review
- UA in China
- UA in India



# Registries & Registrars – A Roadmap to becoming UA Ready!

- Four Stages
- EPP
- Decisions
- Next Steps

# Four Stages

- Inventory & Assessment
- Internal Applications
- External Facing Applications
- Third Party Applications

# Evaluation Criteria

- Contains or uses an Email address or domain name
- Accept, Validate, Store, Process, Display
- Error Messages
- Blockers/Points of Failure

# Examples

- \* Internal Systems

- \* Financial
- \* Payroll
- \* Intranet
- \* Registry System/Registrar System
- \* Office Apps

- \* Third Party Systems

- \* Databases
- \* Programming Languages

- \* External Facing

- \* Website/CMS
- \* Domain Name Spinner
- \* WhoIS
- \* Contact Us Forms
- \* Storefront
- \* Partner Portals
- \* EPP
- \* Email
- \* CRM
- \* Banking



# EPP

- EPP is already UTF8 ready
- Need to be EXPLICIT in expected data characteristics with partner

# Decisions

- How are you going to STORE your data
- When are you going to do the Punycode conversion

# Next Steps

- Set up a Project within your IT Group
- Insert UA into normal maintenance & development roadmap.
- Test
- Reach out to your partners
- Participate/Lead a local UA effort

# Summary & Conclusions



# Your Opportunities

1. Make sure your own systems are UA Ready
2. Participate in the Registry/Registrar Technical Working Group
3. Participate in the UASG
4. Initiate UA efforts within your own communities
5. Partner with the UASG on your initiatives

Q&A

