

UA Compliance - now is the time

# Universal Acceptance Compliance

- (Again) What is UA & why should you care?
- Approach for custom services
- Approach for packaged services
- UA at ICANN
- Where to learn more

# Universal Acceptance – What it means

Universal Acceptance (UA) 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's different now:

- Country-specific domains (IDN ccTLDs) in 2010
- Wave of new gTLDs in 2013
- Internationalization of character sets in 2015

If your web application or software does any of the following, you must update for Universal Acceptance:

## Website Addresses (URLs)

- Accept/store website addresses
- Auto-link to websites
- Validate website addresses
- URLs in forms submissions
- File transfer via URLs

## Email Addresses

- Validate
- Send/Receive
- Login with email

# Universal Acceptance – Examples

**TLD:** Top level domain (microsoft.**com**, sunshine.**florist**, parks.**us**)

**SLD:** Second level domain (**microsoft**.com, **sunshine**.florist, **parks**.us)

## What You Need to Handle

- TLDs and SLDs can be up to 63 characters long each
- Entire domain definition (URL) can be up to 255 characters long
- TLDs and SLDs can be internationalized (Unicode character set)
  - TLD (florist or 花屋)
  - SLD (sunshine or 日光)

### URL

www.sunshine.florist  
www.sunshine. 花屋  
www. 日光 .florist  
www. 日光 花屋

### Email

joe@sunshine.florist  
joe@sunshine. 花屋  
joe@ 日光 florist  
joe@ 日光 花屋

# UA Compliance – What to do (Custom Code)

- User Interface: **Accept, Validate, Store, Display** URLs or email
  - Handle up to 63 characters each for TLD and SLD
  - Validate TLD: (short answer: don't, but if you do:)
    - Download latest list often ([www.iana.org/domains/root/db](http://www.iana.org/domains/root/db))
    - Validate using Unicode or Punycode
  - Is almost all your business in ASCII?
    - Yes: stay in ASCII, convert to Punycode as needed
    - No: convert everything (internally) to Unicode
- System: **Search, Process, Export** URLs or email
  - Search: convert both to Unicode before search
  - Program-to-Program Communication
    - Convert to ASCII

Punycode is a way to represent Unicode in the limited ASCII set

# UA Compliance – Off the Shelf / Contracted

- Off-the-Shelf products
  - Does product use domains/emails?
  - If so, send vendor UA requirements
  - Ask for compliance response
  - May not be straight yes/no
  - If missing or incomplete: ask for roadmap assurances



Is UA Compliance on your roadmap?

- Contracted Development
  - Add amendment for UA Compliance
  - While you're adding to the contract:
    - IPv6
    - DNSSEC
  - Examples of all three at end of presentation



Contractual amendments

# Example Contract Paragraphs

IPV6 SPECIFICATION COMPLIANCE: To the extent the Services and/or Deliverables include development or provision of software and/or devices that support network or Internet connectivity of any kind, Contractor warrants and represents that all such Services and Deliverables will be fully compliant with the Internet Engineering Task Force (IETF) Internet Protocol, Version 6 Specification, sometimes referred to as the IPv6 Specification; and, in addition, will be fully backward-compatible with the Internet Engineering Task Force (IETF) Internet Protocol, Version 4 Specification, sometimes referred to as the IPv4 Specification, including without limitation having the capabilities: (a) to create or receive, process, and send or forward (as appropriate) IPv6 packets in mixed IPv4/IPv6 environments, and (b) to interoperate with other IPv6 compliant software, devices and websites on networks supporting only IPv4, only IPv6, and both IPv4 and IPv6. The expectation is that any networked application or service developed for ICANN would operate irrespective of whether such services were accessed using IPv4 or IPv6.

UNIVERSAL ACCEPTANCE OF TLDs COMPLIANCE (Universal Acceptance (UA) 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. ): To the extent the Services and/or Deliverables include development or provision of software and/or devices that support network or Internet connectivity of any kind, Contractor warrants and represents that all such Services and Deliverables will be fully compliant with the following provision: In whatever manner a Service/Deliverable handles a domain name, the Service/Deliverable shall do so consistently for all standards compliant names in all top-level domains listed in IANA's Root Zone Database (accessible via <https://www.iana.org/domains/root/db>) at the time of delivery and guarantees consistency for three years.

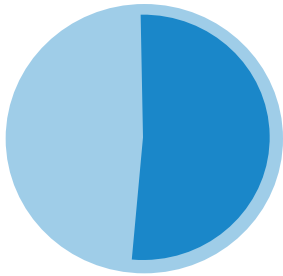
DNSSEC COMPLIANCE: To the extent the Services and/or Deliverables include development, provision, and/or use of the domain names, Contractor warrants and represents that all such Services and Deliverables will be fully compliant with the following provisions:

- a) The Service/Deliverable is consistent with the definitions contained in the following list of RFCs and applicable errata, as the RFCs apply to the Service/Deliverable. The titles given here are representative, not the full name to improve readability of the list.
- b) For Services/Deliverables making use of data obtained via DNS responses, DNSSEC validation must be active, use the IANA DNS Root Key Signing Key set (available at <https://www.iana.org/dnssec/files>) as a trust anchor, and support the updating of the Key Signing Key via RFC 5011 (and any revisions)
- c) Services/Deliverables publishing zone data must DNSSEC-sign the zone data and describe the signing procedure in a document as described in RFC 6841, *A Framework for DNSSEC Policies and DNSSEC Practice Statements*.

# Universal Acceptance at ICANN

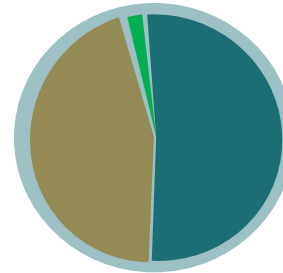
## Ongoing Task

All Business-Directed  
Digital Services



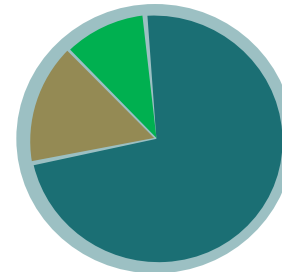
40 Off-the-Shelf  
44 Custom In-House

Off-the-Shelf



21 Need contract update  
**18 N/A**  
**1 UA Compliant**

Custom Services



32 Need to Test & Fix  
**7 N/A**  
**5 UA Compliant!**



# Example (Salesforce)

Salesforce systems:

- TLD / SLD Length
  - No limit on TLD or SLD length
  - Limit on total label length is 80 (less than RFC limit of 255)
- Unicode character set
  - Fully supported in a non-email field
  - Only English characters for email-type fields (confidence in delivery)
- Validation of TLDs
  - No validation requirements and none in ICANN instances
- Processing
  - Communication with other systems in ASCII

Example:

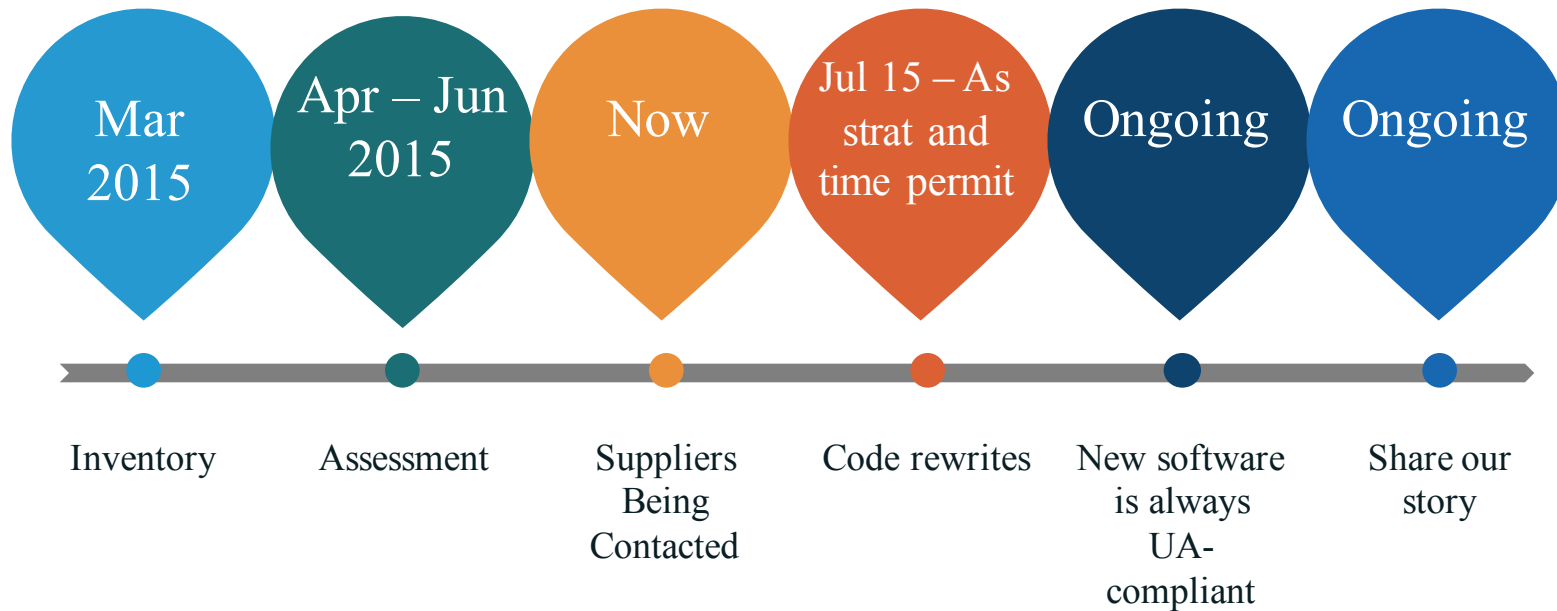
- User sets locale & language to Russian
  - GDD Portal displayed in Russian fonts and labels
  - GDD Portal accepts URLs in Cyrillic (Unicode)
  - GDD export to RRI in ASCII (punycode)

# More Information

- ICANN UASG (<https://community.icann.org/display/TUA/Documents>)
  - Steering Group notes, fact sheets, guidelines, and a suffix list
- ICANN.ORG (<https://www.icann.org/resources/pages/universal-acceptance-2012-02-25-en>)
  - How to get involved and archives of public comments
- Wikipedia ([https://en.wikipedia.org/wiki/List\\_of\\_Internet\\_top-level\\_domains](https://en.wikipedia.org/wiki/List_of_Internet_top-level_domains))
  - Top-level domain list: what's up (.florist) and what isn't yet (.travel)
- Wikipedia ([https://en.wikipedia.org/wiki/Internationalized\\_domain\\_name](https://en.wikipedia.org/wiki/Internationalized_domain_name))
  - Good article on ASCII vs Unicode
- Universal Acceptance link (<http://www.universalacceptance.link/>)
  - Links to explanations, test services, toolkits, and lists of the new gTLDs
- Internationalization (<https://www.w3.org/International/>)
  - Group dedicated to web internationalization

- **CIO's Guide to becoming UA Compliant**
  - **Look for this from ICANN by mid-2016**

# Rough Timeline...



## To Summarize

No easy way out for UA

Inventory > Assessment > Find-it > Fix-it (if your own) > Work with supplier/s

Understand: Looks easy and simple, but will take focus and effort

Questions?

# Further Discussion Points

# Universal Acceptance – Looking Forward

Handling internationalized email prefix requires email client changes (expected 2017 or later)

**TLD:** Top level domain (microsoft.**com**, sunshine.**florist**, parks.**us**)  
**SLD:** Second level domain (**microsoft**.com, **sunshine**.florist, **parks**.us)  
**Email prefix:** Name (**joe**@microsoft.com)

- TLDs and SLDs can be up to 63 characters long each
- All parts can be internationalized (Unicode character set)
  - TLD (florist or 花屋,
  - SLD (sunshine or 日光
  - User name (joe or ジョー,

joe@sunshine.florist  
ジョー@sunshine.florist  
ジョー@sunshine. 花屋  
ジョー@ 日光 花屋