



Universal Acceptability

The Public Suffix List & IDN Whitelist

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Universal Acceptability



- **“Domains should just work”**
 - *This is not just a matter of Registry/Registrar/Registrant + DNS + a little advertising*
- **“My TLD will just work” is an unsafe assumption**
 - *2001 round .INFO and .MUSEUM - TLD Length >3 exposed some issues, tip of iceberg*
 - *25 years of ‘static’ root zone (for lack of better term) has driven oversimplified TLD logic*

Universal Acceptability



Think about the people who build things for people that will use your domain

- **Who are they?**
- **What do they need from you?**
 - *SRS Complimentary Services (Whois clients' awareness of TLD and server, etc.*
 - *Application Developers (Browsers, email clients, etc.)*
 - *Supplemental Service Providers (Hosting Companies, Certs etc.)*
 - *Anti-Spam and Security, Programming Languages, Etc.*

Universal Acceptability



- **ICANN is working on Universal Acceptability**
 - *Outreach ongoing*
 - *Still, anticipate that it is still your opportunity to do this for your community*
- **Do what you can within your community**
 - *Technical Seminars*
 - *FAQs, White Papers, Clear Documentation*
 - *Participate in industry events*

Universal Acceptability



- **Outreach and Awareness**
 - *Seek out those with questions*
 - *Clarify wherever possible*
 - **Blog Posts**
 - **Forums**
 - **Mailing Lists**
- **Locate central comprehensive data resources**
 - *Public Suffix List*
 - *Net::DRI*

Universal Acceptability



YOU can help with Universal Acceptability

Two important community initiatives

- **Mozilla / community Initiatives**
 - *Public Suffix List*
 - *Mozilla IDN Whitelist*



The Public Suffix List

Community-Driven Universal Acceptability

The Public Suffix List (“PSL”)



<http://publicsuffix.org>

What Is it?

- **PSL is a list of all known public suffixes**
 - *Factors in all levels under which Internet users can register or obtain delegations.*
 - *Some examples of public suffixes are ".com", ".co.uk" and "pvt.k12.wy.us" where the IANA list would have ".com", ".uk" and ".us".*
 - *Complimentary to and adds depth/detail to the IANA list of TLDs*



The Public Suffix List (“PSL”)



IANA List

(<http://data.iana.org/TLD/tlds-alpha-by-domain.txt>)

...
AF
AG
AI
AL
AM
AN
...

Public Suffix List

(<http://publicsuffix.org>)

```
// af : http://www.nic.af/help.jsp
af
gov.af
com.af
org.af
net.af
edu.af

// ag : http://www.nic.ag/prices.htm
ag
com.ag
org.ag
net.ag
co.ag
nom.ag

// ai : http://nic.com.ai/
ai
off.ai
com.ai
net.ai
org.ai

// al : http://www.ert.gov.al/ert_alb/faq_det.html?Id=31
al
com.al
edu.al
gov.al
mil.al
net.al
org.al

// am : http://en.wikipedia.org/wiki/.am
am

// an : http://www.una.an/an_domreg/default.asp
an
com.an
net.an
org.an
edu.an
...
```

The Public Suffix List (“PSL”)



Where did it come from?

- **Designed to aid browsers**
 - *Founded in 2007 by Jo Hermans*
- **Practical application rapidly grew its use**
 - *Now maintained with Mozilla, by community and core group of volunteers*

The Public Suffix List (“PSL”)



Where is it used?

It used by (at least):

Browsers: *Firefox, Chrome, Opera, others;*

Languages: *Google’s Java libraries;*

regdom-libs for C, Perl, and PHP;

Nokia QT, Ruby on Rails,

JavaScript - Greasemonkey, many others.

Other Software and Services:

Operating Systems – Hosting Companies –

Statistics Providers – Anti-Spam – Security

Services – Certification Providers – CRM Systems –

Law Enforcement Agencies – Form Validation

+ Many, Many More

The Public Suffix List (“PSL”)



How can I view it?

You can view it at <http://publicsuffix.org/list/> (click the link that says ‘See the list’).

How can I update or add my IANA listed TLD or sub-delegation registry?

To make amendments to the list, please visit this site: <http://publicsuffix.org/submit/>

Note: Requests go through a distributed approval process before implementation

The Public Suffix List (“PSL”)



What does it do?

It allows for validation of the rightmost elements as TLDs underneath a domain name.

It allows browsers to, for example:

- Avoid privacy-damaging "super cookies" being set for high-level domain name suffixes
- Highlight the most important part of a domain name in the user interface
- Accurately sort history entries by site

The Public Suffix List (“PSL”)



Please review and add or update your entry

- **Requirements:**

- *Request must come from Registry/Authorized Party*
- *Rightmost string must be IANA Listed*
- *Subdomain Registries are allowed to request listing*
- *Pre-Delegation Exceptions to IANA listed rule:*
 - **ccTLD IDN Fast-Track TLDs that have passed String Evaluation phase**
 - (i.e. are listed on “[IDN ccTLD Fast Track String Evaluation Completion](#)”)

The Public Suffix List (“PSL”)



Take Away This:

As it relates to Universal Acceptability

- My TLD benefits from being accurately represented in the PSL
- My Community / All Users also benefit
- Simple: One edit cascades out to many applications and developers

Public Suffix List = Good. Go update it now!



Mozilla IDN Whitelist

Internationalization with Curation

Internationalization

عربي
עברית
فارسی

Afrikaans
Shqip
Հայերեն
ককককককক
Asturianu
Euskara
Беларуская
ককককক

Bosanski
Brezhoneg
Български
català

中文 (简体)
正體中文 (繁體)
Hrvatski
Čeština
Dansk
Nederlands
English
Esperanto

Eesti keel
suomi
Français
Frysk

Gàidhlig
Galego
ქართული
Deutsch
Ελληνικά
ગુજરાતી
हन्दी
Magyar

Íslenska
Bahasa Indonesia
Gaeilge (Éire)
Italiano

日本語
ಕಕಕಕಕಕ
Қазақ
한국어
Kurdî
Latviešu
lietuvių kalba
Luganda
मैथिली
कककककक
ಕಕಕಕಕಕ
मराठी
Sepedi

Norsk
කකකකක
ਪੰਜਾਬੀ
Polski
කකකකක
Македонски
Português
română

rumantsch
Русский
Српски
slovenčina

Slovenščina
Soṅay
Español
Svenska
தமிழ்
ಕಕಕಕಕಕ
ไทย
Türkçe

Українська
Tiếng Việt
Cymraeg
isiZulu



Mozilla Firefox 4.0 is fully localized into over 80 distinct languages

and has over

227,486,079

downloads worldwide and growing!



IDN in Top Level Domains



“One World, One Internet, Everyone Connected”

Assuming for this portion that are all familiar with IDN at the top level, or second level and the numerous benefits that come for communities that need more than just A-Z.

All good, but the benefits of new things can often introduce new opportunities for bad actors to exploit.

Example:

well-worn [paypal.com](https://www.paypal.com) in mixed code as mixed language homograph

Homographs also possible within single language set

Æ -> AE

Œ -> OE

DŽ -> DZ

UNLESS registry has policy to avoid the circumstances where there would be two separate registrations for the visually similar domain.

IDN in the wild and Guidelines v2.2



Not all registries have policies to avoid visually similar domains from being registered within their IDN implementations.

Summarizing ICANN IDN Guidelines v 2.2

“List your allowed characters and all else are disallowed”

Very oversimplified summary. View Full policy here for authoritative detail: <http://icann.org/en/topics/idn/implementation-guidelines.htm>

- This still leaves room for homographs

Unicode Technical Reports and Security



Not all registries have policies to avoid visually similar domains from being registered within their IDN implementations.

Summarizing Unicode TR 36 §2.10.4, item B

“Publicly document the enforcement policy on confusables: whether two domain names are allowed to be single-script or mixed script confusables”

Very oversimplified summary. View Full report here for authoritative detail: http://www.unicode.org/reports/tr36/#international_domain_names.

- UTR 36 (<http://unicode.org/reports/tr36>)
- UTR 39 (<http://unicode.org/reports/tr39>)
- This helps close the door on homographs

Human review of policy, then ‘whitelist’



Where registries have policies to avoid visually similar domains from being registered within their IDN implementations.

Unicode TR36 §2.10.3 B,D “Security recommendation for User Agents” (aka Browsers)

- Expose Punicode in Location Bar as default behavior *unless* TLD Policy is reviewed and considered for conformity and then subsequently whitelisted if approved

This helps visually expose homographs so that general users are less likely tricked or confused

Mozilla's IDN-enabled TLD list



- Mozilla maintains such a “whitelist” for their projects

Registry submits policies and code points for review.

Until approved, domains display in Punicode

- Review the qualifications

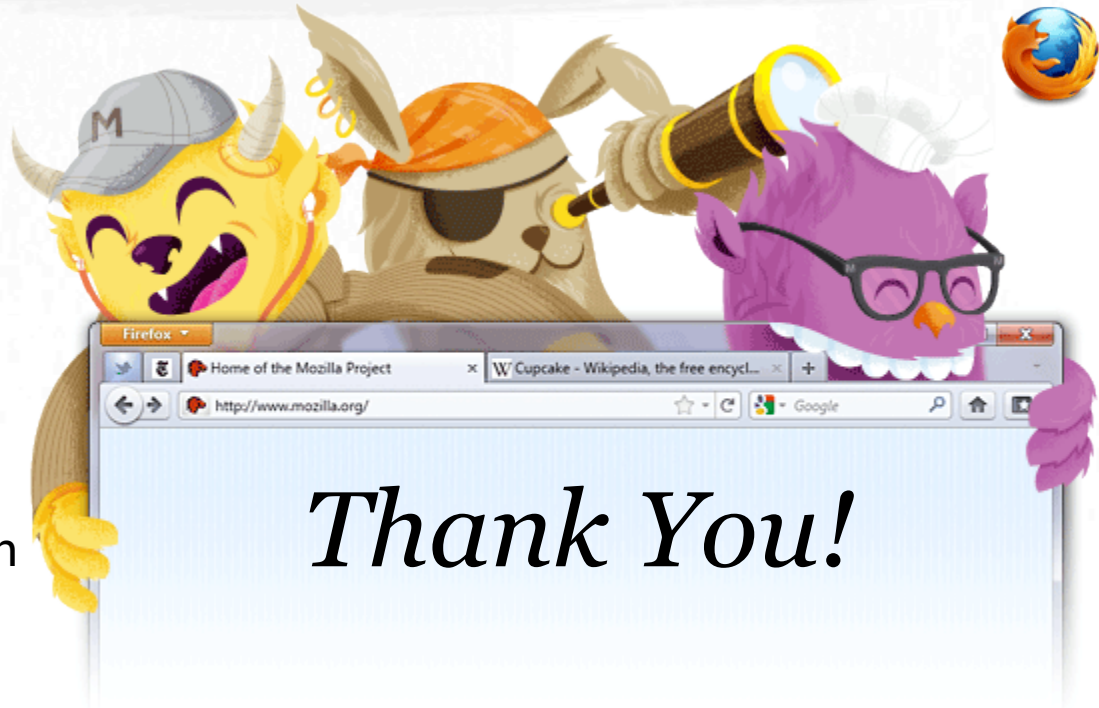
<http://mozilla.org/projects/security/tld-idn-policy-list.html>

- Add your TLD to the list <http://goo.gl/sdpqs>



Questions?

Thank you and recognitions



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