Internationalized Domain Names

W3C Track: An International Web
Agenda

• Definitions
• How does IDNs work and how does that affect users?
• Top IDN question from end-users
• What still needs to be done?
  – IDN TLD wiki (".test")
  – Protocol revision status
  – Processes within ICANN
  – IDN Guidelines
• Summary
IDN Definitions

• Internationalized domain names are:
  – Names with characters other than the standard ASCII (a,b,…z), (0,1,…9), (-)

• IDNs are about localized solutions
  – But need to be ‘internationalized’ due to the global nature of the Internet

• IDNs have existed as second level since 2003
  – under protocol standards
  – ‘second level’ is “icann” in “icann.org”

• We also need IDN TLDs
  – 北京.中国
  – [xn--1lq90i.xn--fiQs8S]
IDN Definitions

• IDNA is the acronym for the IDN protocol
  – developed within the IETF, published in June 2003
• IDNA stands for
  – Internationalized Domain Names in Application.
• Technical details are available in the IETF RFCs:
  – RFCs 3490, 3491, and 3492
• IDNA is currently under revision
  – RFC4690 and associated internet drafts suggesting revisions and solutions to some problems
IDNA – Protocol Functionality

• Domain Name Resolution Process:

http://www.실례.test

End-user / Client → IP address of “xn−” version

Local Server

xn−9n2bp8q.test

Root Server

. тест Server

 realidad . тест Server

IDNA is a client based protocol:

1. User types in 실례. test in for example a browser
2. 실례. test gets converted to Unicode
3. IDNA conversion → xn−9n2bp8q.test
IDNs only work if the application software works with IDNs

- Standard implementation is important to ensure secure global user experience
- Today browser developers have implemented IDNA differently
If I have registered [idn.tld] then will I also be the registrant of [idn.idn-tld]?

- Policy considerations
  - related to IP rights vs. competition options
  - difficult to do meaningful translation of existing strings

- GNSO Policy:
  - No precedence for existing registries
  - Objection rights exists for confusingly similarity

- ccTLD operators and GAC are considering needs for IDN ccTLD aliasing solution

- If requested then technical solution is needed
Remaining Slides is status reviews of development work that is underway

- IDN wiki
- IDNA protocol revision
- IANA management processes
- Policy/Allocation Processes
- IDN guidelines
IDNwiki

Welcome to the IDN TLD evaluation gateway!

There are new articles on Additional languages and Technical topics.

Contents

1 Introduction
2 Your participation is important!
3 Limited evaluation period
4 Things to test
5 Further information about the IDNwiki
6 The example test names

Introduction

This page provides an introduction to a test of IDN top-level domain names that ICANN is coordinating. The test is based on eleven new internationalized domains representing the name example.test entirely in scripts other than the familiar Latin characters that appear in current top-level labels. The languages initially selected for illustrating this are listed in the table below, and the rationale behind their choice is discussed in the sidebar article on basic concepts. These TLDs can be accessed by clicking on the links in the first column in the table. However, as with any other IDNs, if they are typed or copied and pasted directly into the address line of a browser, they will only work if that browser has full support for IDN. The names in the second column are intended to be used in that manner and, if they don’t initially perform as intended, some software reconfiguration may help. Additional articles discuss local configuration and individual software applications.

Your participation is important!

Public participation in the evaluation of these domains is one of the most important parts of the project. Joining this initiative requires nothing more than for you to click through one or more of the links in the table and report about the experience on the ”discussion page” indicated with a tab at the top of this and the other IDNwiki articles.

Were the results what you expected?
How does your application handle IDN?
## Status of the `.test` wiki

<table>
<thead>
<tr>
<th>Script</th>
<th>Language</th>
<th>SLD.TLD U-labels</th>
<th>SLD A-label</th>
<th>TLD A-label</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabic</td>
<td>Arabic</td>
<td>مثال.اختبار</td>
<td>xn--mgbh0fb</td>
<td>xn--kgbechtv</td>
</tr>
<tr>
<td>Arabic</td>
<td>Persian</td>
<td>مثال.آزمایشی</td>
<td>xn--mgbh0fb</td>
<td>xn--hgbk6aj7f53bba</td>
</tr>
<tr>
<td>Chinese, simplified</td>
<td>Chinese</td>
<td>例子.测试</td>
<td>xn--fsqu00a</td>
<td>xn--0zwm56d</td>
</tr>
<tr>
<td>Chinese, traditional</td>
<td>Chinese</td>
<td>例子.測試</td>
<td>xn--fsqu00a</td>
<td>xn--g6w251d</td>
</tr>
<tr>
<td>Cyrillic</td>
<td>Russian</td>
<td>пример.испытание</td>
<td>xn--e1afmkfd</td>
<td>xn--80akhbyknj4f</td>
</tr>
<tr>
<td>Devanagari</td>
<td>Hindi</td>
<td>उदाहरण.परीक्षा</td>
<td>xn--p1b6ci4b4b3a</td>
<td>xn--11b5bs3a9aj6g</td>
</tr>
<tr>
<td>Greek</td>
<td>Greek</td>
<td>παράδειγμα.δοκιμή</td>
<td>xn--hxajbheg2az3al</td>
<td>xn--jxalpdlp</td>
</tr>
<tr>
<td>Hangul</td>
<td>Korean</td>
<td>실례.테스트</td>
<td>xn--9n2bp8q</td>
<td>xn--9t4b11yi5a</td>
</tr>
<tr>
<td>Hebrew</td>
<td>Yiddish</td>
<td>בימいや.テスト</td>
<td>xn--fdbk5d8ap9b8a8d</td>
<td>xn--deba0ad</td>
</tr>
<tr>
<td>Kanji Hirigana, and Katakana</td>
<td>Japanese</td>
<td>例え.テスト</td>
<td>xn--r8jz45g</td>
<td>xn--zckzah</td>
</tr>
<tr>
<td>Tamil</td>
<td>Tamil</td>
<td>அம்பாள்பயமாறியாம்</td>
<td>xn--zkc6cc5bi7f6e</td>
<td>xn--hlej6aya9esc7a</td>
</tr>
</tbody>
</table>
Status of the .test wiki

• Purpose of the IDNwiki:
  – Introduce users to IDN TLDs
  – Applications test environment for usability
  – Registry information about user problems
• Conduct an experiment with IDN TLDs
  – not a pre-requisite for production in root zone
  – no registrations are available
• Functions as a “normal wiki”, user access
Status of the .test wiki

• Adding new “features”
  – New languages:
    • Amharic (4th level under idn.icann.org)
    • Hebrew (2nd level under existing TLD)
    • coming: Thai (4th level)
  – process available for others languages
  – DNSSEC signing the zones
  – exploring IDN email addition
    • experimental status of technical standard
IDNwiki Access

• IDNwiki can be accessed at:
  – http://idn.icann.org
  – Thanks to users, moderators, and wiki staff,
    • includes useful information about IDN
    • in all available languages
  – Please:
    – Visit the site
    – Try IDNs
    – Report on results
    – Use information
    – Add information
Status of the IDNA revision

• Proposed revision at IETF
  – from extremely hard working participants
• Unicode version independent
  – Three categories by procedure not table
    • Protocol-valid (some w/ contextual rules)
    • Disallowed
    • Unassigned
• Attempting to plan for educational sessions on the difference between protocol versions
Status of IDNA revision

Basis in RFC4690, describing issues

- draft-klensin-idnabis-issues-07.txt
  - overall rationale and explanation
- draft-klensin-idnabis-protocol-04.txt
  - registration vs. resolution
- draft-faltstrom-idnabis-tables-05.txt
  - category operations procedure
  - not table, but holds Unicode-5.0 result for reference
- draft-alvestrand-idna-bidi-04.txt
  - to allow combining marks at end of string, by test
IANA management of IDN TLDs

• Process for insertion of IDN TLDs in root
  – exists for test domains only (IDN .test)
    • Developed w/ RSSAC & SSAC recommendations
  – need review, revision, and implementation
  – includes emergency removal procedure
    • for test IDN TLDs only
  – Initial review scheduled by IANA staff
    • Before 30 June 2008
    • Result to be published publicly
ICANN TLD Allocation Processes

**Country-code IDN TLDs – Fast Track**
- Deploy non-contentious ccTLD equivalents quickly
- Where demand/readiness exists
- Don’t wait for full ccNSO PDP
- Tomorrow, half day session on policy issues and methodology

**Country-code IDN TLDs – Long Term**
- Full policy that caters for all
- Follows the full ccNSO Policy Development Process
- Issues paper scheduled for publication by ICANN Paris meeting (Jun08)

**New Generic TLDs**
- New ongoing policy for new gTLDs
- Includes internationalized domains
- Focus on non-ASCII squatting & confusingly similarity solutions
**IDN Guidelines**

- **ICANN IDN Guidelines**
  - Need revision to follow IDNA revision
  - Developed by ccTLD and gTLD registry operators

- **Local community guidelines, for example:**
  - Informal ‘Arabic script’ meetings in Dubai
  - Language experts participate in IDNA review
    - Review of characters that are valid per the protocol
  - In addition to protocol, a need for:
    - Local registration policies and variant tables
Summary – everything is under-way

- Protocol – general validity of character and in some extend string validity
- IDN Guidelines – implementation of protocol, and global rules for scripts and languages
- Local Directions – local rules for scripts and languages
- Registry testing and implementations
- Application testing and implementations
- Allocation and Delegation Procedures
- Apps Developer, Registry, Registrar, Reseller, Registrant, User:

Outreach, Education, Information
Thank You

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http://icann.org/topics/idn