Utilization of email based on IDN

EMAIL ADDRESSES INTERNATIONALIZATION

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Did you know?

- 60 percent of Internet users are non-English speakers, ([www.glreach.com](http://www.glreach.com)). Generally, language of Internet is English.

- 83% of the world's population is estimated to be non-English speaking. So far, they have been unable to communicate in their own languages via Web and e-mail addresses. ([afilias.info/idnemail](http://afilias.info/idnemail))
What is Email Address Internationalization (EMA)?

- **International** email (IDN email or Intl email) is email that contains international characters (characters which do not exist in the ASCII character set), encoded as UTF-8, in the email header and in supporting mail transfer protocols.

- IDN is domain name are represented by local language characters other than a, b..., z; 0, 1,..., 9; and“-“.
  Such domain names could contain NON-ASCII characters. (Russian, Hindi, Thai or Chinese.)

Examples:

- डाटा.भारत
- εχαμπλε.ψομ
- 例.广告
- 数据.中国
- экземпль.рус
# Types of Email

## Traditional email addresses

<table>
<thead>
<tr>
<th>Email Address</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="mailto:Abc@example.com">Abc@example.com</a></td>
<td>(English, ASCII)</td>
</tr>
<tr>
<td><a href="mailto:Abc.123@example.com">Abc.123@example.com</a></td>
<td>(English, ASCII)</td>
</tr>
<tr>
<td>user+mailbox/department=<a href="mailto:shipping@example.com">shipping@example.com</a></td>
<td>(English, ASCII)</td>
</tr>
<tr>
<td>!#$%&amp;'*+-/=??^_`.{</td>
<td>}~@example.com</td>
</tr>
<tr>
<td>&quot;Abc@def&quot;@example.com</td>
<td>(English, ASCII)</td>
</tr>
<tr>
<td>&quot;Fred Bloggs&quot;@example.com</td>
<td>(English, ASCII)</td>
</tr>
</tbody>
</table>

Traditional email addresses are limited to characters from the [English alphabet](https://en.wikipedia.org/wiki/English_alphabet) and a few other special characters.
# Types of Email

## IDN domain email addresses

<table>
<thead>
<tr>
<th>IDN domain email</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>xing@例子.广告</td>
<td>(English + Unicode)</td>
</tr>
<tr>
<td>adri@डाटा. भारत</td>
<td>(English + Unicode)</td>
</tr>
<tr>
<td>ankhzaya@датаком.мон</td>
<td>(English + Unicode)</td>
</tr>
<tr>
<td>Agathe@εχαμπλε.ψομ</td>
<td>(English + Unicode)</td>
</tr>
<tr>
<td>anastasia@экзампл.рус</td>
<td>(English + Unicode)</td>
</tr>
</tbody>
</table>
## Types of Email

### EAI email addresses

<table>
<thead>
<tr>
<th>International email</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>用户@例子.广告</td>
<td>(Chinese, Unicode)</td>
</tr>
<tr>
<td>अजय@डाटा. भारत</td>
<td>(Hindi, Unicode)</td>
</tr>
<tr>
<td>анхзаяа@дата.мон</td>
<td>(Mongolian, Unicode)</td>
</tr>
<tr>
<td>θσερ@εχαμπλε.ψομ</td>
<td>(Greek, Unicode)</td>
</tr>
<tr>
<td>аджай@экзампл.рус</td>
<td>(Russian, Unicode)</td>
</tr>
</tbody>
</table>

International email, by contrast, uses **Unicode** characters encoded as **UTF-8** - allowing for the encoding the text of addresses.
Why are EAI important?

- The fact is, the Internet is accessed by more people who do not use Latin languages and scripts than those who do. This means that it is difficult for them to recognize ASCII characters and reproduce them on keyboards or use software to enter website addresses in browsers and email address in to message field.
Benefits of EAI and IDN

- Native language communication
- Exchange addresses by voice
- Easy typing using local keyboard layout
- Native language search queries
- More and more people will join internet in their own language
New opportunity is UTF-8 headers

- Traditional format was: using MIME-encoded words (just only in display names or in a Subject header field)
- Including Unicode characters in a header section using UTF-8 encoding (**SMTPUTF8** extension — RFC 653x)
EAI standards

- RFC 6530: Overview and Framework for Internationalized Email
- RFC 6531: SMTP Extension for Internationalized Email (SMTPUTF8)
- RFC 6532: Internationalized Email Headers
- RFC 6533: Internationalized Delivery Status and Disposition Notifications
- RFC 6855: IMAP Support for UTF-8
Internationalization (i18n) support

**EAI implementations**

- Coremail, XgenPlus, Throughwave and others can host EAI addresses.
- Latest versions of PostFix (3.0+) and Exim (4.86+) (widely used Mail Transfer Agents) are EAI-ready.
- Android Email Client (default), BharatSync Communicator (Android), Apple Mail (IOS), Microsoft Outlook 2016 for Windows and others are also EAI-ready.
- Gmail, Office365 and others can send to and receive from EAI addresses, but does not allow the registration of non-ASCII email addresses.
- Mailman, a popular open source mailing list manager, is also EAI-ready.
Technical problems

- Incompatible SMTP — server MUST support SMTPUTF8 to receive EAI mail
- All other mail server infrastructure must support UTF-8:
  - POP3/IMAP, LMTP, mail storage
  - indexing, searching, filtering, scripting, anti-virus, anti-spam (incl. DKIM)
  - mailing list software, etc
Widespread Problems

- World’s largest email providers need to make the changes like Google.
- Waiting for mass adoption.
- Government services
- TLS certificates
- DNS record parameters (SOA contact email, DMARC records etc..)
- Internet infrastructure services (domain registration, TLD ops, hosters, providers)
Meantime in Mongolia

- We have build own IDN TLD registry system for the domain Cyrillic Alphabet .MOH

- We have provide free domain registration to GOVERNMENT ORGANIZATIONS and NGO with high priority

BUT...

- No-one use the EAI in mailbox name
- EAI and IDN email is new (Non-familier)
Our deployment plan in Mongolia

- Provide free email on IDN domain name to the Government Of Mongolia powered by own email solution of local resource
- Increase awareness of IDNs and EAIs, which may include holding awareness workshops.

Receive from and send to EAI

- G-Suite (GMAIL based on custom domain name)
- edu.mn
- захидал@mail.mn
- парламент.мон
Testing between G-Suite (gmail) and EXIM
Test your mail system for EAI support

- Testing RFC 653x in common internet e-mail software:
  - MailMan
  - Yandex
  - Roundcube
  - Outlook 2016
  - Gmail
  - phlyMail
  - Postfix
  - Horde webmail etc ...

- Welcome everyone to communicate and test own RFC 653x compliance
Message for IT companies: (Facebook, Google, Apple, etc..)

Are you ready for the next billion internet users?
Reference

- https://datatracker.ietf.org/doc/rfc6533/
- https://www.ietf.org/archive/id/draft-elkchow-iea-deploy-00.txt
- http://www.postfix.org/SMTPUTF8_README.html
- https://www.icann.org/