EAI Status & Testbed (Email Address Internationalization)

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TWNIC
OUTLINES

• THE PROBLEM
• HISTORY OF THE DEVELOPMENT
• MILESTONES
• EAI ROAD MAP
• TWNIC’S ROLE
• EAI TEST BED
Why I-Email Necessary

• Format of Email address
  – `local-part@domain-part`
  – domain-part has internationalized by IDNA

• Required I-Email Format
  – 葉士豪@臺網中心.tw
  – jeff@臺網中心.tw
  – 葉士豪@臺網中心.台灣
  – jeff葉@臺網中心.tw

• Require Email Address Internationalization
  – not standardized on local-part
Needed Format for I-EMAIL

- $\text{IDN}_A@\text{IDN}_{DN}.\text{ASCII}$
- $\text{IDN}_A\text{ASCII}@\text{IDN}_{DN}.\text{ASCII}$
- $\text{IDN}_A\text{IDN}_B@\text{IDN}_{DN}.\text{ASCII}$

- $\text{IDN}_A@\text{IDN}_{DN}.\text{IDN}_{ROOT}$
- $\text{IDN}_A@\text{ASCII. IDN}_{ROOT}$
- $\text{IDN}_A\text{ASCII}@\text{IDN}_{DN}.\text{IDN}_{ROOT}$
- $\text{ASCII}@\text{IDN}_{DN}.\text{IDN}_{ROOT}$
What’s the Issues?

• Extended complexities (miss interpretation??)
  – Computer to computer communication
    • Store and forward
  – Embedded agent/command
    • Server/client
    • Firewall
    • Spam filter

• Mail routing control information on local-part
  – %, +, !, -, ...
  – Locally defined
Mail routing information on local-part

- Ex: some mail servers implement relay function by using ‘%’ on local part
  - user%hostB@hostA ➔ mail send to user@hostB via hostA

**Diagram:**
- Client: user%hostB@hostA
- Server: user@hostB
- HostA: Identify that user%hostB is on another machine hostB
- HostB: Change local part: user%hostB to user@hostB and relay the message to hostB
Administrator may change the mail routing (Scenario I)

- **Scenario I**
- **User** @ **Host**
- **Server**
- **Relay**
- **Host**
Administrator may change the mail routing (Scenario II)

User

Server

Client

Virus scanner

Host
Client

Server

Server

Firewall

Server

Server

Spam filter

Local routing

Client

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ICANN IDN Workshop at Marrakech, Morocco
History

• Before EAI Working group
  – Aug 2004 – CDNC Meeting
    • Discuss about i-Email issues
  – May 2005 – CDNC Meeting/ JET Meeting
    • Discuss possible solutions
  – Sep 2005 – i-Email Beijing Meeting
    • Experimental RFC
    • Outline the solution framework
  – Nov 2005 – IEE BoF on IETF 64
    • Discuss Internet drafts
    • Apply for WG
• Mar 2006 – EAI WG on IETF 65
  – WG established
  – More Internet drafts discussed
Before EAI Working group

• Leader
  – John C Klensin

• Major Players
  – TWNIC, JPRS, KRNIC and CNNIC

• Defined i-Email structure
  – Framework, SMTP Extension, UTF-8 Header, SMTP downgrade
EAI WG

• Chairs:
  – Harald Alvestrand
  – XiaoDong Lee
• Goal:
  – The initial target will be a set of experimental RFCs that specify the details of this approach and provide the basis for generating and testing interoperable implementations.
  – Once the Experimental RFCs are completed and implemented, the experience gathered will be evaluated.
  – If the approach is found to have been successful, the WG will be rechartered to update the documents for processing onto the standards track.
• WG page:
• Mailing List:
  http://www1.ietf.org/mail-archive/web/ima/index.html
Goals and Milestones

• Done Overview/architecture draft first
• Done Interworking scenarios first draft
• Done SMTP Extensions first draft
• Done Header format first draft
• Done Downgrading in SMTP first draft
• Done Downgrading in POP first draft
• Done Downgrading in IMAP first draft
• Jun 2006 Overview/architecture draft to IESG
• Jun 2006 Interworking scenarios to IESG
• Sep 2006 SMTP Extensions to IESG
• Sep 2006 Header format to IESG
• Sep 2006 Downgrading in SMTP to IESG
• Sep 2006 Downgrading in POP to IESG
• Sep 2006 Downgrading in IMAP to IESG
• Dec 2006 Results and evaluation first draft
• Mar 2007 Results and evaluation to IESG
• Mar 2007 Group recharter for standards track
EAI Document Roadmap

Experimental RFCs
- SMTP Extension
- Header
- SMTP Downgrade
- POP Downgrade
- IMAP Downgrade

Informational RFCs
- Constraints
- Scenarios
- Results and evaluation
- Advice for MUA

Framework
Overview of Solution

- SMTP client handshake with next SMTP server check if SMTP extension is supported by the server
  - Yes: send internationalized email address and headers
  - No: downgrade the email to traditional one (ASCII email address, RFC2821/2822 compatible)
TWNIC role

• Draft header document
  – Internationalized Email Headers
    • draft-yeh-ima-utf8headers-01

• Involve in testing plan
  – Modify sendmail software to implement EAI WG drafts
  – Develop plug-in for MUA to send, receive and display I-Email address
More Information

- Internationalization in Internet Applications: Issues, Tradeoffs, and Email Addresses
- Overview and Framework for Internationalized Email
- Internationalized Email Addresses: Scenarios
- SMTP extension for internationalized email address
- Internationalized Email Headers
- Downgrading mechanism for Internationalized eMail Address (IMA)
- IMAP Support for UTF-8
EAI Test bed

- i-Email user requirement
  - An i-Email user is able to enter and display the characters of his language in email address.
  - An i-Email user is able to store i-Email addresses in an address book, and use "reply" without destroy the address.
  - If the i-Email solution requires keeping extra information around for an address in some cases, the i-Email user is capable of manipulating that information, including storing that information in his address book.
Test bed

• Modify sendmail software to support i-Email specification
  – i-Email SMTP extension
    • http://www.ietf.org/internet-drafts/draft-ietf-eai-smtpext-00.txt
  – UTF8 header
    • http://www.ietf.org/internet-drafts/draft-ietf-eai-utf8headers-00.txt
  – Downgrad
    • http://www.ietf.org/internet-drafts/draft-ietf-eai-downgrade-00.txt
Scenarios

• Two i-Email users
  – One i-Email user (A) sends a message to another i-Email user (B). The recipient replies to the message.

• Three i-Email users
  – As above, but A sends his message to both B and C. Both reply to all the recipients listed in the message.
Scenarios

• One i-Email user sends to one ascii user
  – A, an i-Email user, sends to X, an ascii user. X replies.

• An i-Email user sends to one ascii user and one i-Email user
  – A, an i-Email user, sends to B (an i-Email user) and X (a non-i-Email user); both reply.
EAI Test Bed Demonstration

SMTP Extension

Header

SMTP Downgrade

POP Downgrade

IMAP Downgrade

葉士豪@台網中心.tw

tesg--zqs1zzhobr@xn--fiq43lrmlz83a.tw

June 2006

Ming-Cheng Liang from TWNIC

ICANN IDN Workshop at Marrakech, Morocco
EAI Test Bed Demonstration

SMTP Extension  Header

SMTP Downgrade

POP Downgrade  IMAP Downgrade

葉士豪@台網中心.tw

tesg--2qs1zzh0dr1@xn--fiq43lrrlz83a.tw
EAI Test Bed Demonstration

SMTP Extension
Header
SMTP Downgrade

POP Downgrade
IMAP Downgrade

June 23~30, 2006 Ming-Cheng Liang from TWNIC
ICANN IDN Workshop at Marrakech, Morocco

Iesg--zqs122hodf@xn--fiq43lrlz83a.tw
這裏是 UTF8 編碼, 可以正常看見嗎？
EAI Test Bed-
SMTP negotiation detail

# All the input data is UTF8 encoding

```plaintext
$ telnet eai1.twnic.tw 25
220 eai1.twnic.tw ESMTP Sendmail 8.13.6/8.13.6; Fri, 23 Jun 2006 15:06:41 +0800
ehlo eai1.twnic.tw
250-eai1.twnic.tw Hello log.twnic.net.tw [211.72.210.251], pleased to meet you
-- skip
250-UTF8SMTP
mail from: <FromUTF8@ASCII> EAI=atomic
  250 2.1.0 <FromUTF8@ASCII> EAI=atomic Receiver ok
rcpt to: <ToUTF8@ASCII> EAI=atomic
  250 2.1.5 <ToUTF8@ASCII> EAI=atomic Receiver ok
rcpt to: <ToUTF8@ASCII> EAI=atomic
  250 2.1.5 <ToUTF8@ASCII> EAI=atomic Receiver ok
rcpt to: <ToUTF8@ASCII> EAI=atomic
  250 2.1.5 <ToUTF8@ASCII> EAI=atomic Receiver ok
rcpt to: <ToUTF8@ASCII> EAI=atomic
  250 2.1.5 <ToUTF8@ASCII> EAI=atomic Receiver ok
rcpt to: <ToUTF8+ASCII@ASCII> EAI=atomic
  250 2.1.5 <ToUTF8+ASCII@ASCII> EAI=atomic Receiver ok
rcpt to: <ToUTF8+ASCII@ASCII> EAI=atomic
  250 2.1.5 <ToUTF8+ASCII@ASCII> EAI=atomic Receiver ok
rcpt to: <ToUTF8+ASCII@ASCII> EAI=atomic
  250 2.1.5 <ToUTF8+ASCII@ASCII> EAI=atomic Receiver ok
rcpt to: <ToUTF8+ASCII@ASCII> EAI=atomic
  250 2.1.5 <ToUTF8+ASCII@ASCII> EAI=atomic Receiver ok
This is Header after 'DATA' command
```

EAI extension

From: UTF8@ASCII
To: UTF8@UTF8 EAI=atomic
To: UTF8+ASCII@ASCII EAI=atomic
To: UTF8+ASCII@ASCII (Original, no EAI args)
To: UTF8@UTF8 EAI=atomic
To: UTF8@UTF8 EAI=atomic

This is Header after 'DATA' command

```
From: "楊振慶" <yiang@eai1.twnic.tw>
To: "楊振慶 EAI=ALI-ADDRESS (UTF8@ASCII)" "楊振慶 atomic.twnic.net.tw",
  "楊振慶 EAI=ALI-ADDRESS (UTF8@UTF8)" "楊振慶 atomic.twnic.net.tw",
  "楊振慶 EAI=atomic (UTF8@ASCII)" "楊振慶 atomic.twnic.net.tw",
  "楊振慶 EAI=atomic (UTF8@UTF8)" "楊振慶 atomic.twnic.net.tw",
  "abelyang (not EAI mail)" "abelyang@downgrade.twnic.tw",
  "許乃文 EAI=ALI-ADDRESS UTF8@UTF8" "許乃文合網中心.twnic.tw",
  "許乃文 EAI=atomic (UTF8@UTF8)" "許乃文合網中心.twnic.tw",
Subject: EAI Downgrade Testing Fri, 23 Jun 2006 15:06:41 +0800
MIME-Version: 1.0
Content-type: text/plain; charset=utf-8
Content-transfer-encoding: 8bit
Status: 0
```

ABC

這裏是 UTF8 編碼，可以正常看見嗎？
<table>
<thead>
<tr>
<th>From: 楊緯哲@eail.twnic.tw Fri Jun 23 15:06:53 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return-Path: &lt;楊緯哲@eail.twnic.tw&gt;</td>
</tr>
<tr>
<td>Received: from eail.twnic.tw (eail.twnic.tw [211.72.210.249])</td>
</tr>
<tr>
<td>by log.twnic.net.tw (8.13.6/8.13.6) with ESMTP id k5N76rs0007914</td>
</tr>
<tr>
<td>Fri, 23 Jun 2006 15:06:53 +0800</td>
</tr>
<tr>
<td>Received: from eail2.twnic.tw (log.twnic.net.tw [211.72.210.251])</td>
</tr>
<tr>
<td>by eail.twnic.tw (8.13.6/8.13.6) with ESMTP id k5N76fJo029069;</td>
</tr>
<tr>
<td>Fri, 23 Jun 2006 15:06:44 +0800</td>
</tr>
<tr>
<td>Message-Id: <a href="mailto:200606230706.k5N76fJo029069@eail.twnic.tw">200606230706.k5N76fJo029069@eail.twnic.tw</a></td>
</tr>
<tr>
<td>Date: Fri, 23 Jun 2006 15:06:41 +0800</td>
</tr>
<tr>
<td>From: &quot;楊緯哲&quot; &lt;楊緯哲@eail.twnic.tw&gt;</td>
</tr>
<tr>
<td>To: &quot;楊緯哲 EAI=ALT-ADDRESS (UTF8@ASCII)&quot; &lt;楊緯哲@twnic.net.tw&gt;,</td>
</tr>
<tr>
<td>&quot;楊緯哲 EAI=atomic (UTF8@UTF8)&quot; &lt;楊緯哲@台網中心.tw&gt;,</td>
</tr>
<tr>
<td>&quot;葉士豪 EAI=atomic (UTF8@ASCII)&quot; &lt;葉士豪@eail2.twnic.tw&gt;,</td>
</tr>
<tr>
<td>&quot;葉士豪 EAI=atomic (UTF8@ASCII)&quot; &lt;葉士豪@eail2.twnic.tw&gt;,</td>
</tr>
<tr>
<td>&quot;abelyang (not EAI mail)&quot; <a href="mailto:abelyang@downgrade.twnic.tw">abelyang@downgrade.twnic.tw</a>,</td>
</tr>
<tr>
<td>&quot;許乃文 EAI=ALT-ADDRESS UTF8@UTF8)&quot; &lt;許乃文@台網中心.tw&gt;,</td>
</tr>
<tr>
<td>&quot;許乃文 EAI=atomic (UTF8@UTF8)&quot; &lt;許乃文@台網中心.tw&gt;</td>
</tr>
<tr>
<td>Subject: EAI Downgrade Testing Fri, 23 Jun 2006 15:06:41 +0800</td>
</tr>
<tr>
<td>MIME-Version: 1.0</td>
</tr>
<tr>
<td>Content-type: text/plain; charset=utf-8</td>
</tr>
<tr>
<td>Content-transfer-encoding: 8bit</td>
</tr>
<tr>
<td>Status: 0</td>
</tr>
</tbody>
</table>

ABC

這裏是 UTF8 編碼, 可以正常看嗎 ?

[root@log mail]#
EAI Test Bed - EAI downgrade mail

From: iesg-q5vy06ah6h@eai1.twnic.tw  Thu Jun 22 11:26:51 2006
Return-Path: <iesg-q5vy06ah6h@eai1.twnic.tw>
Received: from eai1.twnic.tw (eai1.twnic.tw [211.72.210.249])
    by twnic.net.tw (8.13.6/8/13.5) with ESMTM id k5M3Qo0dD4404
    (version=TLSv1/SSLv3 cipher=DHE-RSA-AES256-SHA bits=256 verify=NO);
    Thu, 22 Jun 2006 11:26:50 +0800
Received: (from smrns@localhost)
    by eai1.twnic.tw (8.13/6/8/13.6) id k5M3Q0x0Q25228; Thu, 22 Jun 2006 11:26:50 +0800
Message-ID: <200606220938.18657206@eai1.twnic.tw>
Received: from eai2.twnic.tw (log.twnic.net.tw [211.72.210.251])
    by eai1.twnic.tw (envelope-sender <iesg-q5vy06ah6h@eai1.twnic.tw>) (MIMEDefang)
    with ESMTM id k5M3QckW025226
    Thu, 22 Jun 2006 11:26:50 +0800 (CST)
Date: Thu, 22 Jun 2006 11:26:38 +0800
Comments: From:
    "楊緯萍" <楊緯萍@eai1.twnic.tw>
From: "楊緯萍" <iesg-q5vy06ah6h@eai1.twnic.tw>
Comments: To:
    "楊緯萍 EAI=ALT-ADDRESS (UTF8@ASCII)" <楊緯萍@twnic.net.tw>, "楊緯萍 EAI=atomic (UTF8@UTF8)" <楊緯萍@台網中心.tw>, "葉士豪 EAI=atomic (UTF8@ASCII)" <葉士豪@eai2.twnic.tw>, "葉士豪 EAI=atomic (UTF8@UTF8)" <葉士豪@台網中心.tw>, "abelyang (not EAI mail)" <abelyang@downgrade.twnic.tw>, "許乃文 EAI=ALT-ADDRESS UTF8@UTF8" <許乃文@台網中心.tw>, "許乃文 EAI=atomic (UTF8@UTF8)" <許乃文@台網中心.tw>
To: "楊緯萍 EAI=ALT-ADDRESS (UTF8@ASCII)" <iesg-q5vy06ah6h@twnic.net.tw>,
    "楊緯萍 EAI=atomic (UTF8@UTF8)" <iesg-q5vy06ah6h@xn-fiq43lrlz83a.tw>,
    "葉士豪 EAI=atomic (UTF8@ASCII)" <iesg-q70b354k51g@eai2.twnic.tw>,
    "葉士豪 EAI=atomic (UTF8@UTF8)" <iesg-q70b354k51g@eai2.twnic.tw>,
    "abelyang (not EAI mail)" <abelyang@downgrade.twnic.tw>,
    "許乃文 EAI=ALT-ADDRESS UTF8@UTF8" <iesg-q1q008c93z@xn-fiq43lrlz83a.tw>,
    "許乃文 EAI=atomic (UTF8@UTF8)" <iesg-q1q008c93z@xn-fiq43lrlz83a.tw>
Subject: EAI Downgrade Testing Thu, 22 Jun 2006 11:26:38 +0800
MIME-Version: 1.0
Content-type: text/plain; charset=utf-8
Content-transfer-encoding: 8bit
Status: RO
ABC

Address downgrade ( iesg—PunyCode )

Original headers for 'Comments'

From used to 'Reply', need to downgrade

To used to MUA display and for 'Reply All', need to downgrade, where UTF8 address rewriting for iesg—(Local-Part to puny code) or IDNA domain-part
ABC

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