

# Internationalizing WHOIS

## Preliminary Approaches for Discussion

Internationalized Registration Data Working Group

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# Background



# State of the Inquiry

- Started in December 2009.
- Bi-weekly meetings held to scope the problem.
- This presentation covers current work in progress and possible approaches for discussion.
- Goal is to produce a report for the Generic Names Supporting Organization (GNSO) in November 2010.

# Problem

Internationalized domain name (IDN) guidelines exist for domain labels and names.

No standards exist for submission and display of domain name registration data in WHOIS services\*



\* Includes both interactive web page and port 43 service

# Internationalized Registration Data Working Group (IRD-WG)

## Chairpersons

Edmon Chung (GNSO)

Jeremy Hitchcock (SSAC)

## International

Representation in the

IRD-WG: 17 participants,

5 staff support, 5

countries (China,

Morocco, New Zealand,

Russia, USA), 3 ccTLDs

(.cn, .nz, .ru), 3 SOs/ACs

(ALAC, GNSO, SSAC).

## Purpose:

Joint Working Group of the Generic Names Supporting Organization (GNSO) and the Security and Stability Advisory Committee (SSAC) to study the feasibility and suitability of introducing submission and display specifications to deal with the internationalization of Registration Data.

# Possible Approaches

- General Service Requirement
- Localized User Experience
- Submission and Display Alternatives

# Possible General Service Requirement



What capabilities are needed for the WHOIS service in the IDN environment?

# Possible General Service Requirement

- 1) WHOIS port 43 clients must be able to accept a user query of a domain name in either U-label or A-label format;
- 2) WHOIS clients must be able display result of queries in both U- and A-label for the domain names; and
- 3) Bundled representations of a single A or U-label query should be returned.

```
$ whois -h new.whois.registrarX.com 测试.com
$ whois -h new.whois.registrarX.com XN--0ZWM56D.com

% Registrar X WHOIS server
% This query returned 1 object

domain:      测试.com
domain-ace:   XN--0ZWM56D.com
domain-variant: 测试.com
domain-v-ace: XN--G6W251D.com

organisation: Internet Assigned Numbers Authority
address:      4676 Admiralty Way
address:      Suite 330
address:      Marina del Rey California 90292
address:      United States
```

U-label: Unicode form of the IDN label

A-label: ASCII form of the IDN label



# Possible General Service Requirement - Additional Issues to Consider

1. The existing WHOIS protocol has no mechanism for indicating a preferred character set to use either for query input or for the display of the results of a query.
2. One possible approach would be for interested parties to submit a proposal to Internet Engineering Task Force (IETF) for consideration as a standard track RFC.

# Localized User Experience

What is needed from internationalized registration data to accommodate users who want to submit and have registration data displayed in “familiar” characters from local scripts?



# Specific Registration Data to Localize

## Registrar Accreditation Agreement (RAA) WHOIS Required Data

- a) Domain names (RAA 3.3.1.1)
- b) Name server names (RAA 3.3.1.2)
- c) Sponsoring registrar (RAA 3.3.1.3)
- d) Telephone/fax (RAA 3.3.1.7,8)
- e) Email address (RAA 3.3.1.7,8)
- f) Dates (RAA 3.3.1.4,5)
- g) Registration status
- h) Entity names (RAA 3.3.1.6,7,8) (registrant, admin contact, technical contact) and Postal addresses (RAA 3.3.1.6,7,8)

# Approach for Domain Names

WHOIS services should return both A-label and U-label representation as well as the variants for the given IDN domains queried.

```
$ whois -h new.whois.registrarX.com 清华大学.cn
$ whois -h new.whois.registrarX.com XN--XKRY9KK1BZ66A.cn

% Registrar X WHOIS server
% This query returned 1 object

domain:          清华大学.cn
domain-ace:      XN--XKRY9KK1BZ66A.cn

domain-variant1: 清華大學.cn
domain-v1-ace:   XN--PSSU7C511AWWU.cn
domain-variant2: 清華大学.cn
domain-v2-ace:   XN--PSS25CP43AWWU.cn
domain-variant3: 清华大學.cn
domain-v3-ace:   XN--XKRY9K32BX46A.cn
domain-variant4: 清華大学.cn
domain-v4-ace:   XN--PSS25CT53AFVU.cn
domain-variant5: 清華大學.cn
domain-v5-ace:   XN--PSSU7C921AFVU.cn
domain-variant6: 清华大学.cn
domain-v6-ace:   XN--XKRY9KK1BI56A.cn
domain-variant7: 清华大學.cn
domain-v7-ace:   XN--XKRY9K32BG36A.cn
```

# Approach for Name Server Names

- With internationalized domain names, it is possible that some will publish their name servers in IDN.
- Name servers should be displayed in both A-label and U-label to the extent such information is available.

```
$ whois -h new.whois.registrarX.com 测试.com
$ whois -h new.whois.registrarX.com XN--0ZWM56D.com

domain:          测试.com
domain-ace:      XN--0ZWM56D.com
domain-variant: 测试.com
domain-v-ace:   XN--G6W251D.com

....

nserver1:        A.IANA-SERVERS.NET 192.0.34.43
nserver1-ace:    NONE
nserver2:        B.测试.COM          193.0.0.1
nserver-ace:     B.XN--0ZWM56D.COM 193.0.0.1
```

# Approach for Sponsoring Registrar

- Always make available in ASCII to aid the identification of this registrar; and
- To the extent consistent with the registrar accreditation process also make it available in local languages/scripts.

```
$ whois -h new.whois.registrarX.com 测试.com
$ whois -h new.whois.registrarX.com XN--OZWM56D.com

domain:          测试.com
domain-ace:      XN--OZWM56D.com
domain-variant: 测试.com
domain-v-ace:   XN--G6W251D.com

.....

Registrar:      Registrar X
address:        123 Example Ave,
address:        Suite 330
address:        Marina del Rey California 90292
address:        United States
phone:          +1 310 823-9358
fax-no:         +1 310 823-8649
e-mail:         iana@iana.org
```

# Approach for Telephone/Fax Numbers

- Apply the International Telecommunications Union (ITU) E. 123 standard using the international notation (+31 42 123 4567)

```
$ whois -h new.whois.registrarX.com 测试.com
$ whois -h new.whois.registrarX.com XN--0ZWM56D.com

domain:          测试.com
domain-ace:      XN--0ZWM56D.com
domain-variant: 测试.com
domain-v-ace:    XN--G6W251D.com

.....

Registrar:      Registrar X
address:         123 Example Ave,
address:         Suite 330
address:         Marina del Rey California 90292
address:         United States
phone:           +1 310 823-9358
fax-no:          +1 310 823-8649
e-mail:          iana@iana.org
```

# Approach for Dates

- Include creation date, expiration date, and update date of the domain; and
- Use the date format standard in Extensible Provisioning Protocol (EPP) RFCs 5730-5734.

```
$ whois -h new.whois.registrarX.com 测试.com
$ whois -h new.whois.registrarX.com XN--0ZWM56D.com

% Registrar X WHOIS server
% This query returned 1 object

domain:          测试.com
domain-ace:      XN--0ZWM56D.com
domain-variant: 测试.com
domain-v-ace:    XN--G6W251D.com

....

created:         2007-10-19T20:15:00Z
changed:         2009-10-08T00:45:00Z

....
```



# Approaches for Registration Status

- Registrars and registries often provide the status of the registration. For example client-hold, delete prohibited, update prohibited, etc.
- Leave it in ASCII 7;
- Always publish the exact EPP status code and leave it to the clients to decide whether to localize;
- Identify a more easily understood representation (for the mandatory character set);
- Publish the easily understood representation in mandatory and local character sets.\*

\*Could be any combination of these approaches.

# Three Approaches/Models for Displaying Entity Names (RAA 3.3.1.6,7,8)

Includes registrant name, administrative contact, technical contact, and postal addresses

# Approach 1: Registrants Submit in “Must be Present Language” (US-ASCII)

- Registrars are responsible for providing the ASCII version of the data

```
$ whois -h idnwhois.registrarX.ru      жук.рф
$ whois -h idnwhois.registrarX.ru    XN--F1AI0A.XN--P1AI

% Registrar X WHOIS server
% This query returned 1 object

domain:          жук.рф
domain-ace:      XN--F1AI0A.XN--P1AI
domain-variant:
domain-v-ace:
contact:         Petr Ivanov (Петр Иванов)
organisation:    OSC «Cicle»
address:         Office 1, Lenin st., Kovrov
address:         Vladimir region, 601900
address:         Russia
phone:           +7 49232 48720
fax-no:          +7 49232 48722
e-mail:          cicle@cicle.ru
```

# Approach 2: Registrants Submit in Local Scripts and Registrars Provide Point of Contact

- Registrants provide contact in local scripts; and
- Registrars provide point of contact to deal with translation issues.

```
$ whois -h idnwhois.registrarX.ru      жук.рф
$ whois -h idnwhois.registrarX.ru     XN--F1A10A.XN--P1AI

% Registrar X WHOIS server
% This query returned 1 object

domain:          жук.рф
domain-ace:      XN--F1A10A.XN--P1AI
Registrar:       RU-CENTER LLC
Registrar POC:   http://nic.ru
phone:           +7 800 234-5689
fax-no:          +7 800 234-5699
email:           info@nic.ru
contact:         Петр Иванв
organisation:    ОАО Циркуль
address:         ул.Ленина, офис 1, г.Ковров
address:         Владимирская обл. 601900
address:         Россия
phone:           +7 49232 48720
fax-no:          +7 49232 48722
e-mail:          cicle@cicle.ru
```

# Approach 3: Registrants Submit in Local Scripts and Registrars Provide Transliteration

- Registrants provide information in local scripts; and
- Registrars transliterate on behalf of the registrants.

```
$ whois -h idnwhois.registrarX.ru      жук.рф
$ whois -h idnwhois.registrarX.ru    XN--F1AI0A.XN--P1AI

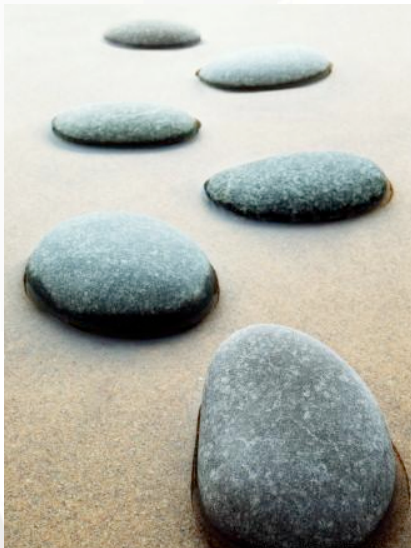
% Registrar X WHOIS server
% This query returned 1 object

domain:          жук.рф
domain-ace:      XN--F1AI0A.XN--P1AI
contact:         Petr Ivanov
organisation:    OAO «Tsirkul»
address:         Office 1, Ulitsa Lenina, Kovrov
address:         Vladimirskaya oblast, 601900
address:         Rossiya
phone:           +7 49232 48720
fax-no:          +7 49232 48722
e-mail:          cicle@cicle.ru
```

# Issue for Discussion: Backward Compatibility with Port 43 WHOIS

- Complete compatibility with existing port 43 request and response in ASCII only {NOT POSSIBLE}
- Enhanced port 43 request allowing domain names in U-label form or A-label form {current suggested approach}
- Enhanced port 43 request allowing domain names in U-label form or A-label form plus requested script code
- Enhanced port 43 response allowing ASCII and UTF-8 {current suggested approach}
- Shift to another port - replacing port 43 - {for discussion}
- Shift to web-based port 80 HTML5 {for discussion}

# Next Steps



- Study the alternatives;
- Consider impacts and benefits to users and stakeholders;
- Recommend a way forward; and
- Produce a report for ICANN Supporting Organizations and Advisory Committees.

**Thank you  
and Questions**