PRECIS Framework Implementation

draft-nemoto-precis-framework-implement-report-00

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Purposes of the implementation

• To evaluate whether precis framework can implement.
• To examine whether implementations based on IDNA2008 has useful features and needs modifications for precis framework implementations.
• To evaluate whether generated table's derived property value by this implementation is the same as precis framework's one.
Implementations (1/2)

- In this document, two implementations based on precis framework are described.
  - **1** Modified implementation of IDNA2008 for precis framework
    - For providing mapping SASLprepbis defined and strings validity check
  - **2** To calculate precis' derived property value and to generate idnabis-tables.xml alike table based on precis framework

These implementations follow implementations of IDNA2008 [draft-nemoto-idna2008-implementation-report-00]
Implementations (2/2)

User

Protocol
Process

Application

In strings

Library

Profile for
precis framework

Out strings

For
SASLprepbis

①

idnabis-tables.xml
alike table

②

Generator

Unicode
property
tables

are implementations in this document

Fig. Components of implementations
Findings (1/5)
Feasibility

- SASL prepbis as one of precis framework's property can implement.
Findings(2/5)
Useful features

• Useful processes of IDNA2008 implementation for precis framework are following.
  – Some mapping features
    Ex. Casefolding, nfc, width
  – Strings validity checking processes
    Ex. For derived property value
    Ex. For string length is non-zero
Findings (3/5)
Modifications

• Modifications to IDNA2008 implementation for precis framework are following
  – Mappings depend on each protocols defined mapping table. Ex. Special mapping (Map to SPACE, Map to Nothing)
  – Checking whether strings are precis NAME CLASS or FREE CLASS processes
Findings(4/5)  
Difference of handling order

• Order of NFC and strings validity check are different in IDNA2008 and SASLprepbis
  – Does not matter for most cases

• In Hangul, some characters' derived property value is DISALLOWED before NFC, but after NFC the value is PVALID.
  – Before NFC:
    HANGUL JAMO 가 (1100+1161) = DISALLOWED
  – After NFC:
    HANGUL SYLLABLE 가 (AC00) = PVALID

• Are these different results critical??
Findings (5/5)
Calculation of derived property values

- Generated table's derived property value by this implementation isn't the same as precis framework's one.

<table>
<thead>
<tr>
<th>Code point</th>
<th>Precis framework's value</th>
<th>Generated table's value</th>
</tr>
</thead>
<tbody>
<tr>
<td>00BA</td>
<td>FREE_PVAL</td>
<td>PVALID</td>
</tr>
<tr>
<td>074B</td>
<td>PVALID</td>
<td>UNASSIGNED</td>
</tr>
</tbody>
</table>

- In these case, according to on Unicode properties files values, the generated table's values are correct.
- Precis framework's table may need to review.