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precis implementation report
draft-nemoto-precis-framework-implement-report-01

Abstract

This document reports implementation experience of precis framework [[I-D.ietf-precis-framework](#)], for SASLprepbis [[I-D.ietf-precis-saslprepbis](#)], Nickname [[I-D.ietf-precis-nickname](#)] and XMPPbis [[I-D.ietf-xmpp-6122bis](#)], and findings from the experience.

And this document further discusses considerations to implement precis framework.

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1. Introduction

This document is a report of implementation experience to evaluate whether precis framework for each protocol can implement.

Some applications of IDNA2008 [[RFC5890](#)] [[RFC5891](#)] [[RFC5892](#)] [[RFC5893](#)] [[RFC5894](#)] are expected to modified to precis framework. This document reports to examine whether a implementation based on IDNA2008 has useful processes and needs modifications for precis framework.

In this document, two implementations based on precis framework are described. The one is to evaluate the feasibility of implementation for precis framework. This implementation is modified an application of IDNA2008 to provide useful features such as normalization and mappings for precis framework and some protocols. The other is empirically to calculate precis' derived property value and to generate idnabis-tables.xml is a like table based on precis framework by using Unicode properties files.

And also some applications are expected to support some protocols. If one precis framework implementation is for one protocol, there may be duplications of processes in multiprotocols-adaptive applications. To eliminate the waste of duplications and to be adapted flexibly for multiprotocols, this document reports summary of common features with and different individual features from precis framework's recommendation in each protocol.

2. Experience

2.1. Purposes

Purposes of the implementations are following;

- o To evaluate whether precis framework can implement.
- o To examine whether applications based on IDNA2008 has useful features and needs modifications for precis framework implementations.
- o To evaluate whether precis framework implementations for some protocols have common features with and different individual features from precis framework's recommendation.

2.2. Implementations

In this document, two implementations based on precis are described. these implementations follow implementations of IDNA2008 [[I-D.nemoto-idna2008-implementation-report](#)].

The one is modified application of IDNA2008 for precis framework. The base application provides APIs for handling internationalized domain names. This implementation is for providing mapping SASLprepbis, Nickname and XMPPbis defined and strings validity check. The implementation is to evaluate whether SASLprepbis as one of precis framework's property can be implemented and to find out whether applications based on IDNA2008 has useful features and needs modifications for precis framework implementations.

The implementation can import tables of certain version of Unicode properties and corresponding derived property value table for precis is the same format as idnabis-tables.xml for codepoint validation.

The other is empirically to calculate precis' derived property value and to generate idnabis-tables.xml is a like table based on precis framework by using Unicode properties files.

3. Findings

Findings from implementation experience are following.

- o SASLprepbis, Nickname and XMPPbis as one of precis framework's property can implement individually.
- o Applications based on IDNA2008 has useful processes are following.
 - * Some mapping features
Ex. Casemapping, nfc, width mapping, delimiter mapping
 - * Strings validity checking processes
Ex. For derived property value (As necessary, the file describing derived property value table for precis should be generated.)
Ex. For byte length
- o Applications based on IDNA2008 needs modifications for precis implementations are following.
 - * Mappings depend on each protocols defined mapping table.
Ex. Special mapping (Mapping to SPACE, Mapping to Nothing)
 - * Checking whether strings are precis NameClass, FreeClass or SubClass processes

4. Summary of implementation results

This section summarizes different protocol individual features from and common features with precis framework's recommendation. And this section lists useful processes from an application based on IDNA2008.

4.1. Individual features for SASLprepbis

- o In passwords, non ASCII space characters are mapped to SPACE(U+0020)

4.2. Individual features for Nickname

- o NFKC
- o Non ASCII space characters from "N" category MUST be mapped to SPACE(U+0020)
- o Leading and trailing whitespace MUST be removed
- o Interior sequences of more than one ASCII space character MUST be mapped to a single ASCII space character

4.3. Individual features for XMPPbis

- o Width mapping

4.4. Common features with precis framework's recommendation

- o NFC
- o Casemapping
- o Additional mapping
- o Bidi Rule

4.5. Useful processes from an IDNA2008 application

- o NFC, NFKC
- o Casemapping
- o Width mapping
- o Delimiter mapping

- o Language based local mapping
- o Bidi Rule
- o Strings validity checking

5. Further Discussion

In this document, some applications are expected to use some protocols and one precis framework implementation should be adapted for multiprotocols. From this point, this section further discusses open issues to implement precis framework.

- o If one implementation supports precis NameClass and FreeClass, it is necessary to be able to express these in one derived properties table to eliminate the waste of duplications. And it's necessary to define a format of a precis' derived properties table.
- o From [Section 4](#), each protocol has some similar individual features(Ex: mapping to SPASE, mapping to nothing, delimiter mapping). It's necessary to generalize these features and prepare some generalized features to be adapted flexibly for multiprotocols. Followings are generalized features for precis framework implementation.
 - * Mapping from one character to other character or nothing
 - * Mapping from sequence that is more than one character to one character
 - * Removing leading and trailing whitespace
 - * Disallowing additional prohibited characters that each protocol defines as SubClass of precis framework individually

6. IANA Considerations

TBD.

[7.](#) Security Considerations

TBD.

8. Acknowledgment

TBD.

9. Normative references

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[Appendix A](#). Change Log

[A.1](#). Changes since -00

- o Modify document structure for developers of an application of precis framework.
- o Modify the [Section 2](#) "Experience".
- o Modify the [Section 3](#) "Findings".
- o Add the [Section 4](#) "Summary of implementation results".
- o Add the [Section 5](#) "Further Discussion".
- o Add the [Appendix A](#) "Change Log".

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