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# Preparation, Enforcement, and Comparison of Internationalized Strings (PRECIS) Test Vectors

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## Abstract

This document contains test vectors for several Preparation, Enforcement, and Comparison of Internationalized Strings (PRECIS) profiles.

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# 1. Introduction

## 1.1. Overview

This document contains test vectors for several Preparation, Enforcement, and Comparison of Internationalized Strings (PRECIS) [RFC8264] profiles.

Two sets of vectors exist for profiles of the base classes. The first set tests the enforcement step. It takes the form of a table that contains an input string, an output string and an optional error. If the error column has a value of "ctx" it indicates that the context rule was violated, "empty" means that an empty string was disallowed, "rune" means that a disallowed code point (rune) was encountered, and "bidi" indicates that the BIDI Rule was violated. The second set tests the PRECIS comparison step. It takes the form of a table that contains two strings, a boolean that is TRUE if the two strings should be considered equal and FALSE otherwise, and an optional comment.

Vectors for inclusion of code points in the IdentifierClass and FreeformClass are not included. A complete list of valid inputs and Outputs for the derived property algorithm specified in [RFC8264] can be found in the IANA "PRECIS Derived Property Value" registry [IANA.PRECIS.derived.property.value].

## 1.2. Terminology

Many important terms used in this document are defined in [RFC8264], [RFC6365], and [Unicode].

# 2. Test Vectors

## 2.1. Methodology

The test vectors in this document have been verified by three independent implementations. An implementation that concurs with the results provided in this document should be interoperable with other implementations.

Input and output strings are expressed as UTF-8 and hexadecimal encoded byte strings.

### 2.1.1. Enforcement Tests

#### 2.1.1.1. Basic

Input	Output	Err
65cc81cc9f	c3a9cc9f	

*Table 1*

## 2.1.1.2. Context Rule 1

Input	Output	Err
e2808c		ctx
e2808c61		ctx
61e2808c		ctx
e2808cd8a7		ctx
d8ace2808c		ctx
d890e2808cd890d8a7		ctx
d8acd890e2808cd890		ctx
d8ace2808cd8a7	d8ace2808cd8a7	
d8acd890e2808cd890d8a7	d8acd890e2808cd890d8a7	
d8acd890d890e2808cd890d890d8a7	d8acd890d890e2808cd890d890d8a7	
d8acd890e2808cd8a7	d8acd890e2808cd8a7	
d8ace2808cd890d8a7	d8ace2808cd890d8a7	
eea1b2e2808cd8ac	eea1b2e2808cd8ac	
eea1b2d890e2808cd890d8ac	eea1b2d890e2808cd890d8ac	
eea1b2d890d890e2808cd890d890d8ac	eea1b2d890d890e2808cd890d890d8ac	
eea1b2d890e2808cd8ac	eea1b2d890e2808cd8ac	
eea1b2e2808cd890d8ac	eea1b2e2808cd890d8ac	
e0a98de2808c	e0a98de2808c	
eea1b2e0a98de2808c	eea1b2e0a98de2808c	
eea1b2e0a98dd890e2808c		ctx
eea1b2e0a98dd890e2808c		ctx
e0ab8de2808c	e0ab8de2808c	
eea1b2e0ab8de2808c	eea1b2e0ab8de2808c	
eea1b2e0ab8dd890e2808c		ctx

<b>Input</b>	<b>Output</b>	<b>Err</b>
<b>eea1b2e0ab8dd890e2808c</b>		<b>ctx</b>
<b>eea1b2e0ab8de2808cd8ac</b>	<b>eea1b2e0ab8de2808cd8ac</b>	
<b>eea1b2e2808ce0ab8dd8ac</b>	<b>eea1b2e2808ce0ab8dd8ac</b>	

Table 2

## 2.1.1.3. Context Rule 2

<b>Input</b>	<b>Output</b>	<b>Err</b>
<b>e2808d</b>		<b>ctx</b>
<b>e2808d61</b>		<b>ctx</b>
<b>61e2808d</b>		<b>ctx</b>
<b>e0a98de2808d</b>	<b>e0a98de2808d</b>	
<b>eea1b2e0a98de2808d</b>	<b>eea1b2e0a98de2808d</b>	
<b>e0a98d61e2808d</b>		<b>ctx</b>

Table 3

## 2.1.1.4. Context Rule 3

<b>Input</b>	<b>Output</b>	<b>Err</b>
<b>c2b7</b>		<b>ctx</b>
<b>6cc2b7</b>		<b>ctx</b>
<b>c2b76c</b>		<b>ctx</b>
<b>61c2b7</b>		<b>ctx</b>
<b>6cc2b761</b>		<b>ctx</b>
<b>61c2b761</b>		<b>ctx</b>
<b>6cc2b76c</b>	<b>6cc2b76c</b>	
<b>616cc2b76c61</b>	<b>616cc2b76c61</b>	

Table 4

## 2.1.1.5. Context Rule 4

Input	Output	Err
<b>cdb5</b>		<b>ctx</b>
<b>cdb561</b>		<b>ctx</b>
<b>ceb1cdb5</b>		<b>ctx</b>
<b>cdb5ceb1</b>	<b>cdb5ceb1</b>	
<b>ceb1cdb5ceb1</b>	<b>ceb1cdb5ceb1</b>	
<b>cdb5cdb5ceb1</b>	<b>cdb5cdb5ceb1</b>	
<b>ceb1cdb5cdb5ceb1</b>	<b>ceb1cdb5cdb5ceb1</b>	
<b>ceb1cdb5cdb5</b>		<b>ctx</b>
<b>ceb1cdb5cdb561</b>		<b>ctx</b>

Table 5

## 2.1.1.6. Context Rule 5+6

Input	Output	Err
<b>d7b3</b>		<b>ctx</b>
<b>d7b3d794</b>		<b>ctx</b>
<b>61d7b362</b>		<b>ctx</b>
<b>d7a9d7b3</b>	<b>d7a9d7b3</b>	
<b>d7a9d7b3d7b3d7b3</b>	<b>d7a9d7b3d7b3d7b3</b>	
<b>d7b4</b>		<b>ctx</b>
<b>d7b4d794</b>		<b>ctx</b>
<b>61d7b462</b>		<b>ctx</b>
<b>d7a9d7b4</b>	<b>d7a9d7b4</b>	
<b>d7a9d7b4d7b4d7b4</b>	<b>d7a9d7b4d7b4d7b4</b>	
<b>61d7a9d7b4d7b4d7b4</b>	<b>61d7a9d7b4d7b4d7b4</b>	

Table 6

## 2.1.1.7. Context Rule 7

Input	Output	Err
e383bb		ctx
616263e383bb		ctx
e383bb646566		ctx
616263e383bb646566		ctx
61e3838563e383bb646566	61e3838563e383bb646566	
616263e383bb64e381b666	616263e383bb64e381b666	
e2ba906263e383bb646566	e2ba906263e383bb646566	

Table 7

## 2.1.1.8. Context Rule 8+9

Input	Output	Err
d9a1d9a2d9a3d9a4d9a5dbb6		ctx
dbb1dbb2dbb3dbb4dbb5d9a6		ctx
d9a1d9a2d9a3d9a4d9a5	d9a1d9a2d9a3d9a4d9a5	
dbb1dbb2dbb3dbb4dbb5	dbb1dbb2dbb3dbb4dbb5	

Table 8

## 2.1.1.9. Nickname

Input
20205377616e20206f6620202041766f6e202020
20
2020
61c2a061e19a8061e2808061e2808161e2808261e2808361e2808461e2808561e2808661e2808761e2808861e2808961e
466f6f
666f6f

**Input****466f6f20426172****666f6f20626172****cea3****cf83****cf82****e2999a****5269636861726420e285a3****e284ab****efac80****d7a961****e8f99ec9dbceca1b0eab1b4ebb380eab2bded9788eb9dbd***Table 9***2.1.1.10. OpaqueString****Input****20205377616e20206f6620202041766f6e202020****20****2020****61c2a061e19a8061e2808061e2808161e2808261e2808361e2808461e2808561e2808661e2808761e2808861e2808961e****466f6f****666f6f****466f6f20426172****666f6f20626172****cf83****5269636861726420e285a3**



**Input****e284ab****4a61636b206f6620e299a673****6d7920636174206973206120096279****d7a961***Table 10***2.1.1.11. UsernameCaseMapped**

<b>Input</b>	<b>Output</b>	<b>Err</b>
<b>6a756c696574406578616d706c652e636f6d</b>	<b>6a756c696574406578616d706c652e636f6d</b>	
<b>6675737362616c6c</b>	<b>6675737362616c6c</b>	
<b>6675c39f62616c6c</b>	<b>6675c39f62616c6c</b>	
<b>cf80</b>	<b>cf80</b>	
<b>cea3</b>	<b>cf83</b>	
<b>cf83</b>	<b>cf83</b>	
<b>cf82</b>	<b>cf82</b>	
<b>49</b>	<b>69</b>	
<b>49</b>	<b>69</b>	
<b>cf92</b>		<b>rune</b>
<b>ceb0</b>	<b>ceb0</b>	
<b>666f6f20626172</b>		<b>rune</b>
<b>e2999a</b>		<b>bidirule: failed Bidi Rule</b>
<b>7e</b>	<b>7e</b>	
<b>61</b>	<b>61</b>	
<b>21</b>	<b>21</b>	

<b>Input</b>	<b>Output</b>	<b>Err</b>
<b>c2b2</b>		<b>bidirule: failed Bidi Rule</b>
<b>09</b>		<b>rune</b>
<b>0a</b>		<b>rune</b>
<b>e29b96</b>		<b>bidirule: failed Bidi Rule</b>
<b>e29bbf</b>		<b>bidirule: failed Bidi Rule</b>
<b>efac80</b>		<b>rune</b>
<b>e19a80</b>		<b>bidirule: failed Bidi Rule</b>
<b>20</b>		<b>rune</b>
<b>2020</b>		<b>rune</b>
<b>c785</b>		<b>rune</b>
<b>e19bae</b>		<b>rune</b>
<b>d288</b>		<b>bidirule: failed Bidi Rule</b>
<b>e284ab</b>	<b>c3a5</b>	
<b>41cc8a</b>	<b>c3a5</b>	
<b>c385</b>	<b>c3a5</b>	
<b>c3a7</b>	<b>c3a7</b>	

Input	Output	Err
63cca7	c3a7	
c598	c599	
52cc8c	c599	
e1b9a1	e1b9a1	
d090	d0b0	
efbca1efbca2	6162	
d7a963		<b>bidirule: failed Bidi Rule</b>

Table 11

## 2.1.1.12. UsernameCasePreserved

Input	Output	Err
414243	414243	
efbca1efbca2	4142	
d7a963		<b>bidirule: failed Bidi Rule</b>
efac80		<b>rune</b>
e284ab	c385	
e1ba9b		<b>rune</b>

Table 12

## 2.1.1.13. UsernameCaseMappedRestricted

Input	Output	Err
6a756c696574406578616d706c652e636f6d		<b>rune</b>
49	69	

Table 13

## 2.1.2. Comparison Tests

### 2.1.2.1. Nickname

A	B	Result
61	62	false
20205377616e20206f6620202041766f6e202020	7377616e206f662061766f6e	true
466f6f	666f6f	true
666f6f	666f6f	true
466f6f20426172	666f6f20626172	true
666f6f20626172	666f6f20626172	true
cea3	cf83	true
cea3	cf82	false
cf83	cf82	false
5269636861726420e285a3	72696368617264206976	true
e284ab	c3a5	true
efac80	6666	true
c39f	7353	false
c2a8	20cc88	true
c2a8	cc88	true
20cc88	cc88	true

Table 14

## 3. IANA Considerations

This document requires no interaction with the Internet Assigned Numbers Authority (IANA).

## 4. Security Considerations

This document is intended to provide test vectors for the PRECIS framework and its profiles. No assertion of the security of the PRECIS framework or its profiles for any particular use is intended. The reader is referred to [RFC8264] for a discussion of the general security of the PRECIS framework.

## 5. References

### 5.1. Normative References

- [RFC8264] Saint-Andre, P. and M. Blanchet, "PRECIS Framework: Preparation, Enforcement, and Comparison of Internationalized Strings in Application Protocols", RFC 8264, DOI 10.17487/RFC8264, October 2017, <<https://www.rfc-editor.org/info/rfc8264>>.

### 5.2. Informative References

- [IANA.PRECIS.derived.property.value] Fältström, P., "PRECIS Derived Property Value", 23 March 2015, <<https://www.iana.org/assignments/precis-tables-6.3.0/precis-tables-6.3.0.xhtml>>.
- [RFC6365] Hoffman, P. and J. Klensin, "Terminology Used in Internationalization in the IETF", BCP 166, RFC 6365, DOI 10.17487/RFC6365, September 2011, <<https://www.rfc-editor.org/info/rfc6365>>.
- [Unicode] The Unicode Consortium, "The Unicode Standard", <<http://www.unicode.org/versions/latest/>>.

## Appendix A. Acknowledgements

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