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OpenID Connect Standard Claims Registration for CBOR Web Tokens  
draft-ietf-spice-oidc-cwt-01

## Abstract

This document registers OpenID Connect standard claims already used in JSON Web Tokens for use in CBOR Web Tokens.

## About This Document

This note is to be removed before publishing as an RFC.

The latest revision of this draft can be found at <https://ietf-wg-spice.github.io/draft-ietf-spice-oidc-cwt/#go.draft-ietf-spice-oidc-cwt.html>. Status information for this document may be found at <https://datatracker.ietf.org/doc/draft-ietf-spice-oidc-cwt/>.

Discussion of this document takes place on the Secure Patterns for Internet CrEentials Working Group mailing list (<mailto:spice@ietf.org>), which is archived at <https://mailarchive.ietf.org/arch/browse/spice/>. Subscribe at <https://www.ietf.org/mailman/listinfo/spice/>.

Source for this draft and an issue tracker can be found at <https://github.com/ietf-wg-spice/draft-ietf-spice-oidc-cwt>.

## Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

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## 1. Introduction

OpenID Connect [OpenID.Core] is an authentication standard including standard claims already in use for JSON Web Tokens (JWT) [RFC7519]. CBOR Web Tokens (CWT) [RFC8392] have a claims registry, but do not include most of these claims. This draft aims at unifying use of OpenID Connect claims in JWTs and CWTs.

## 2. Conventions and Definitions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in BCP 14 [RFC2119] [RFC8174] when, and only when, they appear in all capitals, as shown here.

## 3. Address Claim

To further reduce the size of this prevalent and large claim, we register integer labels for it. We strictly map the definition of claims in Section 5.1.1 of [OpenID.Core]: all the claims are optional and "formatted" can either be used instead or in addition of all the other fields.

## 4. Security Considerations

This document registers existing OpenID Connect standard claims already used in JSON Web Tokens [RFC7519] for use in CBOR Web Tokens [RFC8392] without changing their semantics. The Security and Privacy Considerations respectively of Sections 16 and 17 of [OpenID.Core] also apply.

## 5. IANA Considerations

All claims defined in this document are placed in the (CBOR Web Token (CWT) Claims) [IANA.CWT.Claims] Registry (part of the eponymous registry group). No new IANA registry is created.

In case any of the suggested code points would have been claimed by the time the IESG approves the document for publication as an RFC, IANA is asked to assign Claim Key values from the 170-256 range.

### 5.1. name

- \* Claim Name: name

- \* Claim Description: End-User's full name in displayable form including all name parts, possibly including titles and suffixes, ordered according to the End-User's locale and preferences.
- \* JWT Claim Name: name
- \* Claim Key: TBD1 (170 suggested)
- \* Claim Value Type(s): text string
- \* Change Controller: IETF
- \* Specification Document(s): Section 5.1 of [OpenID.Core]

## 5.2. given\_name

- \* Claim Name: given\_name
- \* Claim Description: Given name(s) or first name(s) of the End-User.
- \* JWT Claim Name: given\_name
- \* Claim Key: TBD2 (171 suggested)
- \* Claim Value Type(s): text string
- \* Change Controller: IETF
- \* Specification Document(s): Section 5.1 of [OpenID.Core]

## 5.3. family\_name

- \* Claim Name: family\_name
- \* Claim Description: Surname(s) or last name(s) of the End-User.
- \* JWT Claim Name: family\_name
- \* Claim Key: TBD3 (172 suggested)
- \* Claim Value Type(s): text string
- \* Change Controller: IETF
- \* Specification Document(s): Section 5.1 of [OpenID.Core]

## 5.4. middle\_name

- \* Claim Name: middle\_name
- \* Claim Description: Middle name(s) of the End-User.
- \* JWT Claim Name: middle\_name
- \* Claim Key: TBD4 (173 suggested)
- \* Claim Value Type(s): text string
- \* Change Controller: IETF
- \* Specification Document(s): Section 5.1 of [OpenID.Core]

## 5.5. nickname

- \* Claim Name: nickname
- \* Claim Description: Casual name of the End-User that may or may not be the same as the given\_name.
- \* JWT Claim Name: nickname
- \* Claim Key: TBD5 (174 suggested)
- \* Claim Value Type(s): text string
- \* Change Controller: IETF
- \* Specification Document(s): Section 5.1 of [OpenID.Core]

## 5.6. preferred\_username

- \* Claim Name: preferred\_username
- \* Claim Description: Shorthand name by which the End-User wishes to be referred to at the Resource Server.
- \* JWT Claim Name: preferred\_username
- \* Claim Key: TBD6 (175 suggested)
- \* Claim Value Type(s): text string
- \* Change Controller: IETF

- \* Specification Document(s): Section 5.1 of [OpenID.Core]

#### 5.7. profile

- \* Claim Name: profile
- \* Claim Description: URL of the End-User's profile page.
- \* JWT Claim Name: profile
- \* Claim Key: TBD7 (176 suggested)
- \* Claim Value Type(s): text string
- \* Change Controller: IETF
- \* Specification Document(s): Section 5.1 of [OpenID.Core]

#### 5.8. picture

- \* Claim Name: picture
- \* Claim Description: URL of the End-User's profile picture. This URL MUST refer to an image file, rather than to a Web page containing an image.
- \* JWT Claim Name: picture
- \* Claim Key: TBD8 (177 suggested)
- \* Claim Value Type(s): text string
- \* Change Controller: IETF
- \* Specification Document(s): Section 5.1 of [OpenID.Core]

#### 5.9. website

- \* Claim Name: website
- \* Claim Description: URL of the End-User's Web page or blog.
- \* JWT Claim Name: website
- \* Claim Key: TBD9 (178 suggested)
- \* Claim Value Type(s): text string

- \* Change Controller: IETF
- \* Specification Document(s): Section 5.1 of [OpenID.Core]

#### 5.10. email

- \* Claim Name: email
- \* Claim Description: End-User's preferred e-mail address.
- \* JWT Claim Name: email
- \* Claim Key: TBD10 (179 suggested)
- \* Claim Value Type(s): text string
- \* Change Controller: IETF
- \* Specification Document(s): Section 5.1 of [OpenID.Core]

#### 5.11. email\_verified

- \* Claim Name: email\_verified
- \* Claim Description: True if the End-User's e-mail address has been verified; otherwise false.
- \* JWT Claim Name: email\_verified
- \* Claim Key: TBD11 (180 suggested)
- \* Claim Value Type(s): bool
- \* Change Controller: IETF
- \* Specification Document(s): Section 5.1 of [OpenID.Core]

#### 5.12. gender

- \* Claim Name: gender
- \* Claim Description: End-User's defined gender.
- \* JWT Claim Name: gender
- \* Claim Key: TBD12 (181 suggested)
- \* Claim Value Type(s): text string

- \* Change Controller: IETF
- \* Specification Document(s): Section 5.1 of [OpenID.Core]

#### 5.13. birthdate

- \* Claim Name: birthdate
- \* Claim Description: End-User's birthday, represented as an [ISO8601\_1] YYYY-MM-DD format.
- \* JWT Claim Name: birthdate
- \* Claim Key: TBD13 (182 suggested)
- \* Claim Value Type(s): text string
- \* Change Controller: IETF
- \* Specification Document(s): Section 5.1 of [OpenID.Core]

#### 5.14. zoneinfo

- \* Claim Name: zoneinfo
- \* Claim Description: String from IANA Time Zone Database [IANAtimezones] representing the End-User's time zone.
- \* JWT Claim Name: zoneinfo
- \* Claim Key: TBD14 (183 suggested)
- \* Claim Value Type(s): text string
- \* Change Controller: IETF
- \* Specification Document(s): Section 5.1 of [OpenID.Core]

#### 5.15. locale

- \* Claim Name: locale
- \* Claim Description: End-User's locale, represented as a BCP47 [RFC5646] language tag.
- \* JWT Claim Name: locale
- \* Claim Key: TBD15 (184 suggested)

- \* Claim Value Type(s): text string
- \* Change Controller: IETF
- \* Specification Document(s): Section 5.1 of [OpenID.Core]

#### 5.16. phone\_number

- \* Claim Name: phone\_number
- \* Claim Description: End-User's preferred telephone number.
- \* JWT Claim Name: phone\_number
- \* Claim Key: TBD16 (185 suggested)
- \* Claim Value Type(s): text string
- \* Change Controller: IETF
- \* Specification Document(s): Section 5.1 of [OpenID.Core]

#### 5.17. phone\_number\_verified

- \* Claim Name: phone\_number\_verified
- \* Claim Description: True if the End-User's phone number has been verified; otherwise false.
- \* JWT Claim Name: phone\_number\_verified
- \* Claim Key: TBD17 (186 suggested)
- \* Claim Value Type(s): bool
- \* Change Controller: IETF
- \* Specification Document(s): Section 5.1 of [OpenID.Core]

#### 5.18. address

- \* Claim Name: address
- \* Claim Description: End-User's preferred postal address.
- \* JWT Claim Name: address
- \* Claim Key: TBD18 (187 suggested)

- \* Claim Value Type(s): map
- \* Change Controller: IETF
- \* Specification Document(s): Section 5.1 of [OpenID.Core]

#### 5.19. updated\_at

- \* Claim Name: updated\_at
- \* Claim Description: Time the End-User's information was last updated. Its value is a number representing the number of seconds from 1970-01-01T00:00:00Z as measured in UTC until the date/time.
- \* JWT Claim Name: updated\_at
- \* Claim Key: TBD19 (188 suggested)
- \* Claim Value Type(s): uint
- \* Change Controller: IETF
- \* Specification Document(s): Section 5.1 of [OpenID.Core]

### 6. References

#### 6.1. Normative References

- [IANA.CWT.Claims]  
IANA, "CBOR Web Token (CWT) Claims",  
<<https://www.iana.org/assignments/cwt>>.
- [IANAtimezones]  
"IANA time zones", n.d.,  
<<https://www.iana.org/time-zones>>.
- [ISO8601\_1]  
"ISO8601-1", n.d.,  
<<https://www.iso.org/standard/81801.html>>.
- [OpenID.Core]  
Sakimura, N., Bradley, J., Jones, M. B., Medeiros, B. de.,  
and C. Mortimore, "OpenID Connect Core 1.0 incorporating  
errata set 2", 15 December 2023,  
<[https://openid.net/specs/openid-connect-core-1\\_0.html](https://openid.net/specs/openid-connect-core-1_0.html)>.

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, DOI 10.17487/RFC2119, March 1997, <<https://www.rfc-editor.org/rfc/rfc2119>>.
- [RFC5646] Phillips, A., Ed. and M. Davis, Ed., "Tags for Identifying Languages", BCP 47, RFC 5646, DOI 10.17487/RFC5646, September 2009, <<https://www.rfc-editor.org/rfc/rfc5646>>.
- [RFC8174] Leiba, B., "Ambiguity of Uppercase vs Lowercase in RFC 2119 Key Words", BCP 14, RFC 8174, DOI 10.17487/RFC8174, May 2017, <<https://www.rfc-editor.org/rfc/rfc8174>>.
- [RFC8392] Jones, M., Wahlstroem, E., Erdtman, S., and H. Tschofenig, "CBOR Web Token (CWT)", RFC 8392, DOI 10.17487/RFC8392, May 2018, <<https://www.rfc-editor.org/rfc/rfc8392>>.

## 6.2. Informative References

- [RFC7519] Jones, M., Bradley, J., and N. Sakimura, "JSON Web Token (JWT)", RFC 7519, DOI 10.17487/RFC7519, May 2015, <<https://www.rfc-editor.org/rfc/rfc7519>>.

## Appendix A. CDDL Schema

```
name = (TBD1 => tstr) ; "Jane Doe"
given_name = (TBD2 => tstr) ; "Jane"
family_name = (TBD3 => tstr) ; "Doe"
middle_name = (TBD4 => tstr) ; "Ellen"
nickname = (TBD5 => tstr) ; "Jane D."
preferred_username = (TBD6 => tstr) ; "j.doe"
profile = (TBD7 => tstr) ; "https://example.org/about.html"
picture = (TBD8 => tstr) ; "https://example.org/avatar.png"
website = (TBD9 => tstr) ; "https://example.org"
email = (TBD10 => tstr) ; "janedoe@example.com"
email_verified = (TBD11 => bool) ; true
gender = (TBD12 => tstr) ; "female"
birthdate = (TBD13 => tstr) ; "1970-03-22"
zoneinfo = (TBD14 => tstr) ; "America/Los_Angeles"
locale = (TBD15 => tstr) ; "en_US"
phone_number = (TBD16 => tstr) ; "+1 (425) 555-1212"
phone_number_verified = (TBD17 => bool) ; true
address = {
    &(formatted: 1) ^ => tstr, ; "1234 Hollywood Blvd. Los Angeles CA, 90210 United State
s of America"
    &(street_address: 2) ^ => tstr, ; "1234 Hollywood Blvd."
    &(locality: 3) ^ => tstr, ; "Los Angeles"
    &(region: 4) ^ => tstr, ; "CA"
    &(postal_code: 5) ^ => tstr, ; "90210"
    &(country: 6) ^ => tstr, ; "United States of America"
}
updated_at = (TBD19 => uint) ; 1730123071

TBD1 = 170
TBD2 = 171
TBD3 = 172
TBD4 = 173
TBD5 = 174
TBD6 = 175
TBD7 = 176
TBD8 = 177
TBD9 = 178
TBD10 = 179
TBD11 = 180
TBD12 = 181
TBD13 = 182
TBD14 = 183
TBD15 = 184
TBD16 = 185
TBD17 = 186
TBD18 = 187
TBD19 = 188
```

Figure 1: A CDDL description of each claim

## Acknowledgments

TBD

## Document History

-01

- \* Aligned terminology with OpenID Connect specification.

- \* Added Michael B. Jones as an editor.

-00

- \* Initial working group draft, based on draft-maldant-spice-oidc-cwt-02.

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