



## **Verifiable Credentials Subcommittee**

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Internet2 TechEx2024 Acamp



## **Verifiable Credentials Subcommittee Meeting @TechEx**

- Charter and activities
- A bit about VCs
- VC approaches
- VC presentation
- VC schema
- Next Steps

W3C Verifiable Credentials (VC) are increasingly important to our community with the rise of Decentralized Identity and Wallet ecosystems. Several VC based credential definitions already exist for expressing skills and micro-credentials, like e.g. the Openbadges 3.0 specification. However, there is no consistent and community driven definition for expressing the 'identity related' credentials of the commonly used schema managed by REFEDS like e.g. eduPerson, SCHAC and voPerson.

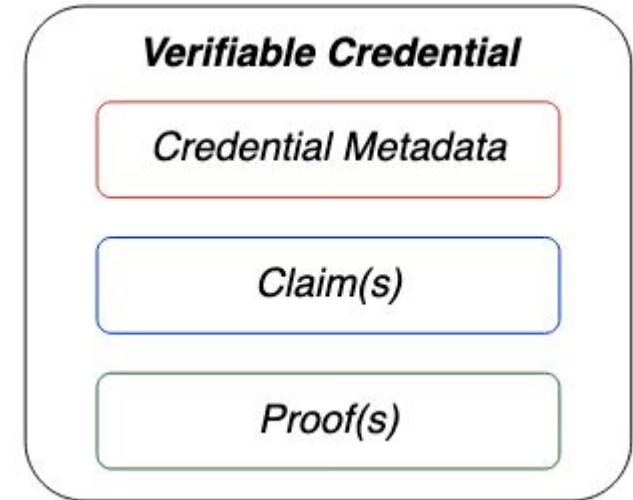
The REFEDS schema board is setting up a subcommittee to define the VC representations of these well known credentials so they may be used in an standardized and interoperable way.

## **Verifiable Credentials Subcommittee**

- Multi stakeholder, global community group (Federation, Institution, Library, Research) of about 20 participants
- Meetup bi-weekly on Friday 08:00 CET  
Next one is Dec 20, 2024

<https://wiki.refeds.org/display/STAN/VC+Subcommittee>

```
{
  "@context": [
    "https://www.w3.org/ns/credentials/v2",
    "https://www.w3.org/ns/credentials/examples/v2"
  ],
  "id": "https://university.example/Credential123",
  "type": ["VerifiableCredential", "ExampleAlumniCredential"],
  "issuer": "did:example:2g55q912ec3476eba219812ecbfe",
  "validFrom": "2010-01-01T00:00:00Z",
  "credentialSubject": {
    "id": "https://www.example.org/persons/pat",
    "name": "Pat",
    "alumniOf": {
      "id": "did:example:c276e12ec21ebfeb1f712ebc6f1",
      "name": "Example University"
    }
  }
}
```



## 1. Introduction

- 1.1. General Remarks
- 1.2. Identifier Concepts
- 1.3. Scope

## 2. eduPerson Object Class and Attributes

- 2.1. eduPerson Object Class Definition
- 2.2. eduPerson Attribute Definitions
  - 2.2.1. eduPersonAffiliation
  - 2.2.2. eduPersonEntitlement
  - 2.2.3. eduPersonNickname
  - 2.2.4. eduPersonOrgDN
  - 2.2.5. eduPersonOrgUnitDN
  - 2.2.6. eduPersonPrimaryAffiliation
  - 2.2.7. eduPersonPrimaryOrgUnitDN
  - 2.2.8. eduPersonPrincipalName
  - 2.2.9. eduPersonPrincipalNamePrior
  - 2.2.10. eduPersonScopedAffiliation
  - 2.2.11. eduPersonTargetedID
  - 2.2.12. eduPersonAssurance
  - 2.2.13. eduPersonUniqueld
  - 2.2.14. eduPersonOrcid

2.2.15. eduPersonAnalyticsTag

2.2.16. eduPersonDisplayPronouns

## 3. Comments on Other Common Person Attributes

- 3.1. audio
- 3.2. cn (commonName)
- 3.3. description
- 3.4. displayName
- 3.5. facsimileTelephoneNumber
- 3.6. givenName
- 3.7. homePhone
- 3.8. homePostalAddress
- 3.9. initials

- 3.10. jpegPhoto
- 3.11. l (localityName)
- 3.12. labeledURI
- 3.13. mail
- 3.14. manager
- 3.15. mobile
- 3.16. o (organizationName)
- 3.17. ou (organizationalUnitName)
- 3.18. pager
- 3.19. postalAddress
- 3.20. postalCode
- 3.21. postOfficeBox
- 3.22. preferredLanguage
- 3.23. seeAlso
- 3.24. sn (surname)
- 3.25. st (stateOrProvinceName)
- 3.26. street
- 3.27. telephoneNumber
- 3.28. title
- 3.29. uid
- 3.30. uniqueIdentifier
- 3.31. userCertificate
- 3.32. userPassword
- 3.33. userSMIMECertificate
- 3.34. x500uniqueIdentifier

## 4. Change Log

## 5. References

## 6. Acknowledgments

**VC !=  
attributes**



```

"credentialDataSupplierInput": {
  "ttl": "31104000",
  "sub": "43e27e05-a688-41df-ab1e-b74271fe02c6",
  "edu_person_unique_id": "43e27e05-a688-41df-ab1e-b74271fe02c6",
  "given_name": "Sharon",
  "family_name": "Hankins",
  "name": "Sharon Hankins",
  "schac_home_organisation": "UvH.nl",
  "email": "eduwallet.test@shankins.uvh@gmail.com",
  "edu_person_affiliation": "student, member",
  "edu_person_scoped_affiliation": "student@uvh.nl, member@uvh.nl",
  "edu_person_entitlement": "urn:mace:dir:entitlement:common-lib-terms-example",
  "edu_person_assurance": "https://refeds.org/assurance",
  "edu_person_nickname": "Sharonneke",
  "edu_person_org_dn": "o=Hogwarts, dc=hsww, dc=wiz",
  "edu_person_org_unit_dn": "ou=Potions, o=Hogwarts, dc=hsww, dc=wiz",
  "edu_person_primary_affiliation": "student",
  "edu_person_primary_org_unit_dn": "ou=Music Department, o=Notre Dame, dc=nd, dc=edu",
  "edu_person_principal_name": "43e27e05-a688-41df-ab1e-b74271fe02c6@uvh.nl",
  "edu_person_principal_name_prior": "sh@student.uvh.nl",
  "edu_person_orcid": "0000-0001-5109-3700",
  "edu_person_analytics_tag": "FOOBAR_ZORKMID, FOOBAR_ZORKMID2",
  "edu_person_display_pronouns": "Ashe, or She/ella*, O /ا، 她/她, 她",
  "audio": "7",
  "cn": "Mary Francis Xavier",
  "description": "A jolly good felon",
  "displayname": "Jack Dougherty",
  "facsimile_telephone_number": "+44 71 123 4567",
  "home_phone": "+1 608 555 1212",
  "home_postal_address": "1212 Como Ave. Midton, SD 45621 USA",
  "initials": "f x",
  "jpeg_photo": "",
  "l": "Hudson Valley",
  "labeled_uri": "http://www.umich.edu/%7Ersug/ldap/",
  "manager": "uid=twilliams, ou=people, dc=hobart, dc=edu",
  "mobile": "+47 22 44 66 88",
  "o": "St. Cloud State",
  "ou": "Faculty Senate",
  "pager": "+1 202 555 4321",
  "postal_address": "P.O. Box 333 Whoville, WH 99999 USA",
  "postal_code": "54321",
  "post_office_box": "109260",
  "preferred_language": "EO",
  "see_also": "cn=Department Chair, ou=physics, o=University of Technology, dc=utech, dc=ac, dc=uk",
  "sn": "Carson-Smith",
  "st": "IL",
  "street": "303 Mulberry St.",
  "telephone_number": "+1 212 555 1234",
  "title": "Assistant Vice-Deputy for Redundancy Reduction",
  "uid": "43e27e05-a688-41df-ab1e-b74271fe02c6",
  "user_certificate": "X.509 certificate",
  "user_password": "*****",
  "user_smime_certificate": "X.509 certificate",
  "x500UniqueIdentifier": "Avoid. X500UniqueIdentifier syntax is specified as bit string, and that is not likely to be a good fit for many of the institutional attribute value choices, especially as part of the DN."
}
}

```

DEMO





```
{
  "credentials": [
    "AcademicBaseCredential"
  ],
  "grants": {
    "urn:ietf:params:oauth:grant-type:pre-authorized_code": {
      "pre-authorized_code": "c2z80i88ivwx72r",
      "tx_code": true
    }
  },
  "credentialDataSupplierInput": {
    "_ttl": [
      "31104000"
    ],
    "sub": [
      "43e27e05-a688-41df-ab1e-b74271fe02c6"
    ],
    "eduperson_unique_id": [
      "43e27e05-a688-41df-ab1e-b74271fe02c6"
    ],
    "given_name": [
      "Sharon"
    ],
    "family_name": [
      "Hankins"
    ],
    "name": [
      "Sharon Hankins"
    ],
    "schac_home_organisation": [
      "UvH.nl"
    ],
    "email": [
      "eduwallet.test+shankins.uvh@gmail.com"
    ],
    "eduperson_affiliation": [
      "student",
      "member"
    ],
    "eduperson_scoped_affiliation": [
      "student@uvh.nl",
      "member@uvh.nl"
    ],
    "eduperson_entitlement": [
      "urn:mace:dir:entitlement:common-lib-terms-example"
    ],
    "eduperson_assurance": [
      "https://refeds.org/assurance"
    ]
  }
}
```

DEMO



```
{
  "credentials": [
    "GenericCredential"
  ],
  "grants": {
    "urn:ietf:params:oauth:grant-type:pre-authorized_code": {
      "pre-authorized_code": "ezasgbc3uss9ktdx"
    }
  },
  "credentialDataSupplierInput": {
    "voPersonID": "0126789acdef014567@sram.surf.nl",
    "voperson_external_id": "05c028f81622d62987cbf74ea8fd0fb7ab86d45c980145515acef36162cb6988@uvh.nl",
    "ssh_public_key": "AAAAC3NzaC1lZDI1NTE5AAAAIBXRCFBt8gWg+V49eKdA+pocxGyZDzmMbQWfKaGPbdll cl@DroseraCapensis ",
    "voperson_external_affiliation": "faculty@uvh.nl, member@uvh.nl",
    "eduPersonAssurance": "https://refeds.org/assurance, https://refeds.org/assurance/profile/cappuccino, https://refeds.org/assurance/profile/cappuccino",
    "eduPersonEntitlement": "urn:mace:surf.nl:sram:group:galactic_senate:presidium, urn:mace:surf.nl:sram:group:galactic_senate:presidium",
    "_ttl": "62208000"
  }
}
```

# DEMO

# REFEDS Approach #4: VC with common claims + Selective Disclosure

```
{
  "credentials": [
    "AcademicBaseCredential"
  ],
  "grants": {
    "urn:ietf:params:oauth:grant-type:pre-authorized_code": {
      "pre-authorized_code": "c2z80188ivwx72r",
      "tx_code": true
    }
  },
  "credentialDataSupplierInput": {
    "_ttl": [
      "31104000"
    ],
    "sub": [
      "43e27e05-a688-41df-ab1e-b74271fe02c6"
    ],
    "eduperson_unique_id": [
      "43e27e05-a688-41df-ab1e-b74271fe02c6"
    ],
    "given_name": [
      "Sharon"
    ],
    "family_name": [
      "Hankins"
    ],
    "name": [
      "Sharon Hankins"
    ],
    "schac_home_organisation": [
      "UvH.nl"
    ],
    "email": [
      "eduwallet.test+shankins.uvh@gmail.com"
    ],
    "eduperson_affiliation": [
      "student",
      "member"
    ],
    "eduperson_scoped_affiliation": [
      "student@uvh.nl",
      "member@uvh.nl"
    ],
    "eduperson_entitlement": [
      "urn:mace:dir:entitlement:common-lib-terms-example"
    ],
    "eduperson_assurance": [
      "https://refeds.org/assurance"
    ]
  }
}
```

```
{
  "@context": [
    "https://www.w3.org/ns/credentials/v2",
    "https://www.w3.org/ns/credentials/examples/v2"
  ],
  "id": "https://university.example/Credential123",
  "type": ["VerifiableCredential", "ExampleAlumniCredential"],
  "issuer": "did:example:2g55q912ec3476eba219812ecbfe",
  "validFrom": "2010-01-01T00:00:00Z",
  "credentialSubject": {
    "id": "https://www.example.org/persons/pat",
    "name": "Pat",
    "alumniOf": {
      "id": "did:example:c276e12ec21ebfeb1f712ebc6f1",
      "name": "Example University"
    }
  },
  "credentialSchema": {
    "id": "https://university.example/Credential-schema.json",
    "type": "JsonSchema"
  }
}
```

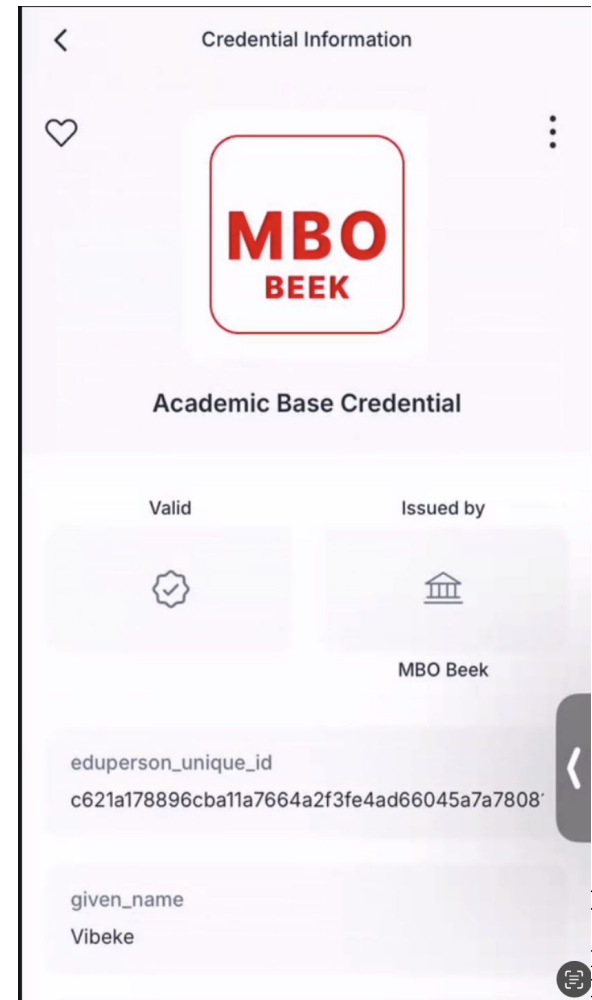
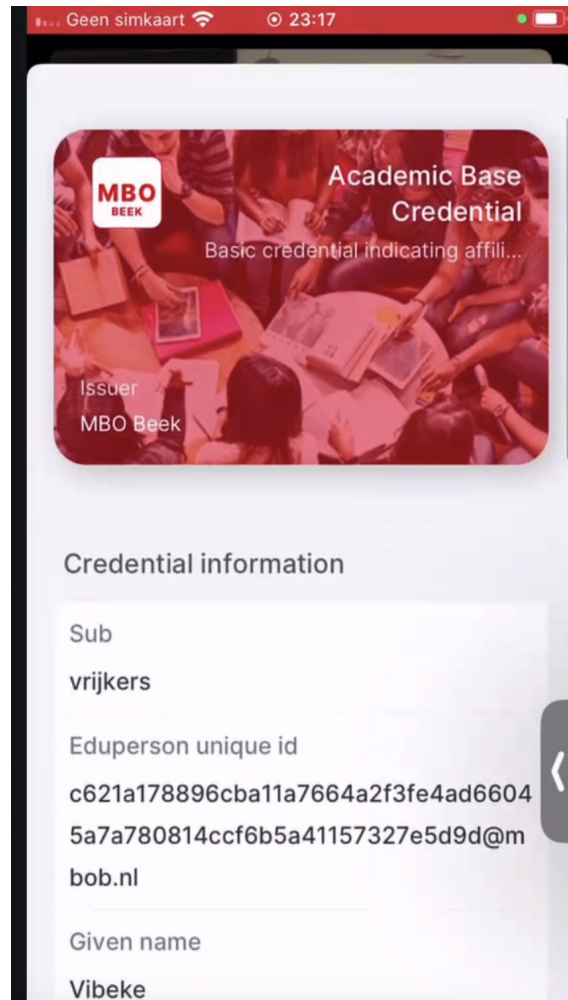
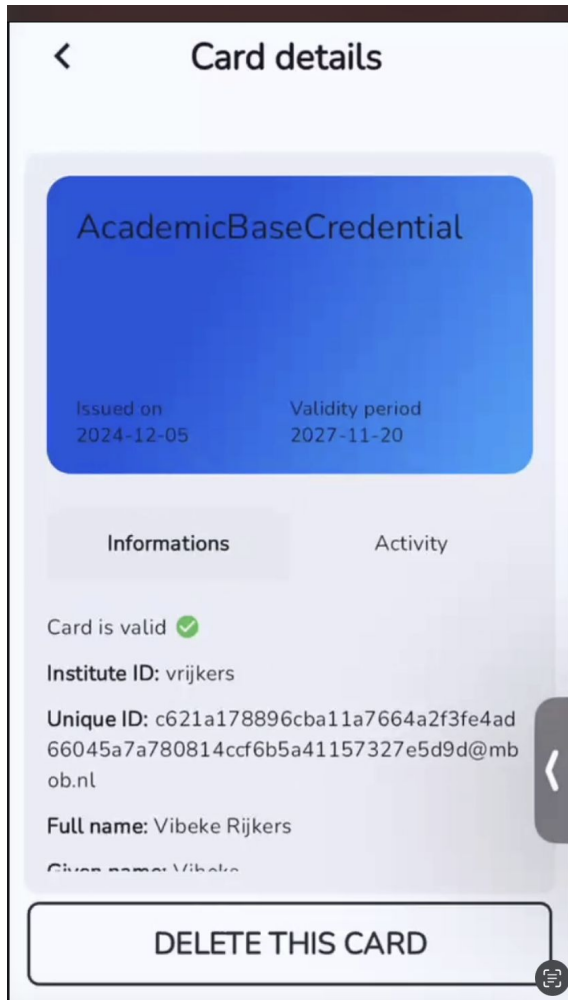
```
{
  "$id": "https://university.example/schemas/credential.json",
  "$schema": "https://json-schema.org/draft/2020-12/schema",
  "title": "ExampleAlumniCredential",
  "description": "Alumni Credential using JsonSchema",
  "type": "object",
  "properties": {
    "credentialSubject": {
      "type": "object",
      "properties": {
        "alumniOf": {
          "type": "string",
          "format": "url"
        }
      }
    },
    "required": [
      "alumniOf"
    ]
  }
}
```

```

← → ↻ https://agent.dev.eduwallet.nl/mbob/.well-known/openid-credential-issuer
Agenda - Niels van ... GN5WP5T5 - Trust ... T7 - Distributed Ide... Eduwallet Incubator ... SURF Intern SSI SSP board ztm Incubator Standup ... ztm SSI task Zoom In
JSON Raw Data Headers
Save Copy Collapse All Expand All Filter JSON
{
  "display": {
    "0": {
      "name": "Academic Base Credential",
      "description": "Basic credential indicating affiliation with MBO Beek",
      "text_color": "#ffffff",
      "logo": {
        "uri": "https://mbob.dev.eduwallet.nl/images/mbob_credential_logo.png",
        "url": "https://mbob.dev.eduwallet.nl/images/mbob_credential_logo.png",
        "alt_text": "MBO Beek",
        "background_color": "#8f0f12",
        "background_image": {
          "uri": "https://mbob.dev.eduwallet.nl/images/mbob_credential_bg.png",
          "url": "https://mbob.dev.eduwallet.nl/images/mbob_credential_bg.png"
        }
      }
    },
    "credential_definition": {
      "type": {
        "0": "VerifiableCredential",
        "1": "AcademicBaseCredential"
      },
      "credentialSubject": {
        "sub": {
          "value_type": "string",
          "mandatory": true,
          "display": {
            "0": {
              "name": "Institute ID"
            },
            "1": {
              "name": "Institute ID",
              "locale": "en-US"
            },
            "2": {
              "name": "Instellings ID",
              "locale": "nl-NL"
            }
          }
        }
      }
    }
  }
}

```





- 1. Standardize the claims**

*White Paper for implementation of mappings between SAML 2.0 and OpenID Connect in Research and Education (2018)*

<https://docs.google.com/document/d/1b-Mlet3Lq7qKLEf1BnHJ4nL1fq-vMe7fzpXyrq2wp08>

- 2. Standardized specific VCs based on common use cases**

Register JSON schema for these VCs

- 3. Describe best practices for presenting the VCs in the wallet**