Digital Credentials Consortiu

Overview

Digital Credentials Consortium (DCC)

VISION

Create an education landscape that increases learner agency and promotes more equitable learning and career pathways

MISSION

Create a **trusted**, **distributed**, and **shared infrastructure** that is the standard for **issuing**, **storing**, **displaying**, and **verifying** digital credentials

Guiding Principles | Values

**Learners** - Commitment to Learner Agency and participation
- Learners retain primary control over their credentials

Issuers - Commitment to Issuer Control of the design and content of the credential
- Issuers control to whom they issue credentials, the particular achievement that the credential represents, and which credential options are available to the learner

Trust - Commitment to Open Processes, Open Standards, Open Source Software
- Credentials can be verified without consulting original issuer

DCC DIGITAL CREDENTIALS CONSORTIUM
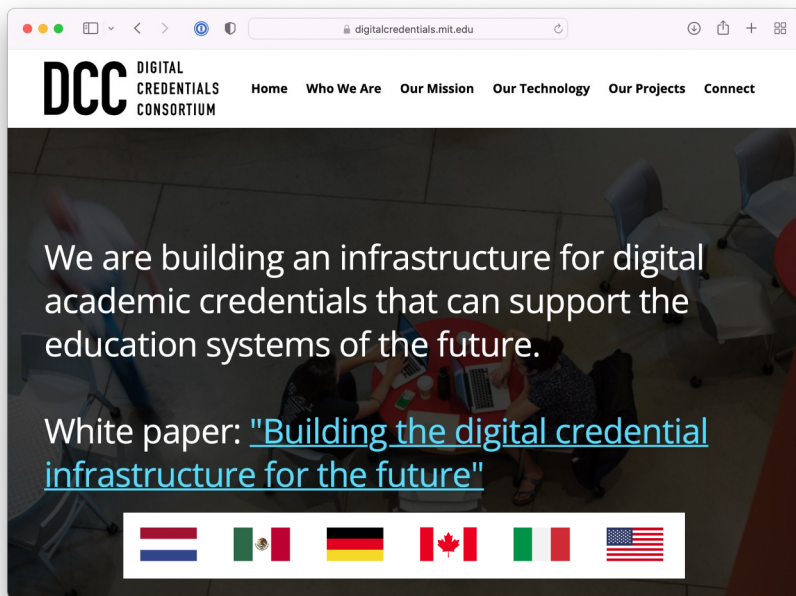
12 Founding Members

Delft University of Technology (Netherlands)

Georgia Institute of Technology (USA)

Harvard University (USA)

Hasso Plattner Institute, Potsdam (Germany)

Massachusetts Institute of Technology (USA)

McMaster University (Canada)

Tecnológico De Monterrey (Mexico)

Technical University of Munich (Germany)

University of California, Berkeley (USA)

University of California, Irvine (USA)

University of Milano-Bicocca (Italy)

University of Toronto (Canada)

White paper: bit.ly/DCC-whitepaper
Barriers to Adoption (report): bit.ly/DCCLastMile

Core Team

Philipp Schmidt | PI, Research Scientist

Brandon Muramatsu | Project Manager, Associate Dir. of Special Projects

Kerri Lemoie, PhD | Director of Technology

Dmitri Zagidulin | Lead Architect

James Chartrand | Engineer

Gillian Walsh | Program Coordinator

+ Engineering Contractors

Christopher Capozzola | Senior Associate Dean, MIT Open Learning

Krishna Rajagopal | Chair of DCC Leadership Council, Professor of Physics

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Main Activities

- **Advance Open Standards**
  - Chair W3C Verifiable Credentials for Education (W3C VC-EDU)
  - Leadership at W3C Credentials Community Group (W3C CCG)
  - Collaboration with education & workforce standards 1EdTech (IMS Global):
    - Comprehensive Learner Record (CLR)
    - Open Badges v3
  - Connected to international efforts (e.g., EU, EBSI, Europass)
- **Develop Software & Libraries:** https://github.com/digitalcredentials
- DCC members build and launch **Pilots and Solutions**
  - DCC provides essential services (registries, etc.)
  - **Technical Working Group** supports pilots, and also coordinates research on various aspects of implementing digital credentials solutions in higher ed context
- Provide **Advice, Analysis/Research, and Support** to members and ecosystem

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Interoperability Through Open Standards
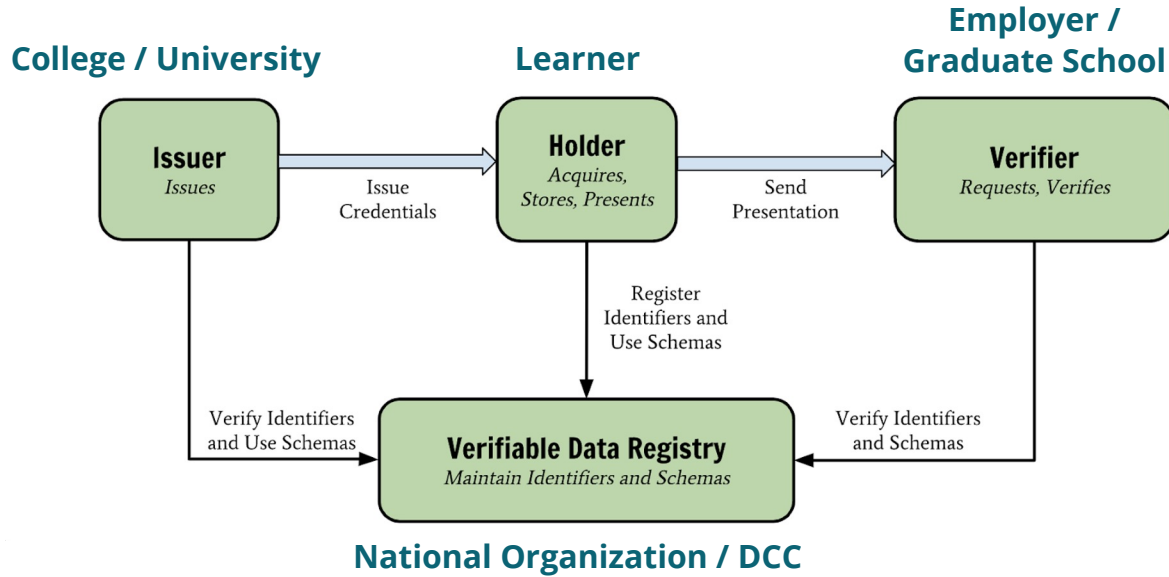
- W3C VC-EDU Task Force
  - Documented 50+ uses cases for VCs
  - Promote activity, interoperability, understanding
  - Sandbox for VC development:
    - Issuer control of credential display
    - Verifiable links to assets, endorsements, other credentials
- W3C CCG
  - Verifiable Credentials 2.0
  - Secure Storage Task Force
  - VC-API Task Force
  - Trust Registries
- Collaboration with education & workforce standards
  - Open Badges v3
  - Comprehensive Learner Record

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Software Libraries & Support

- Aligned with the core standards
- Community driven
- MIT License
- Documentation and support

Verifiable Credentials Ecosystem

College / University

Learner

Employer / Graduate School

Issuer
Issues

Issue Credentials

Holder
Acquires, Stores, Presents

Send Presentation

Verifier
Requests, Verifies

Register Identifiers and Use Schemas

Verify Identifiers and Use Schemas

Verifiable Data Registry
Maintain Identifiers and Schemas

Verify Identifiers and Schemas

National Organization / DCC

DCC Credential
Tamper-evident credential where the authorship can be cryptographically verified, that meets the technical and policy specifications adopted by the DCC.

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Use Cases in Higher Education

- Student ID & Access Credentials
- Enrollment
- Diploma
- GPA
- Transcript
- Certificates
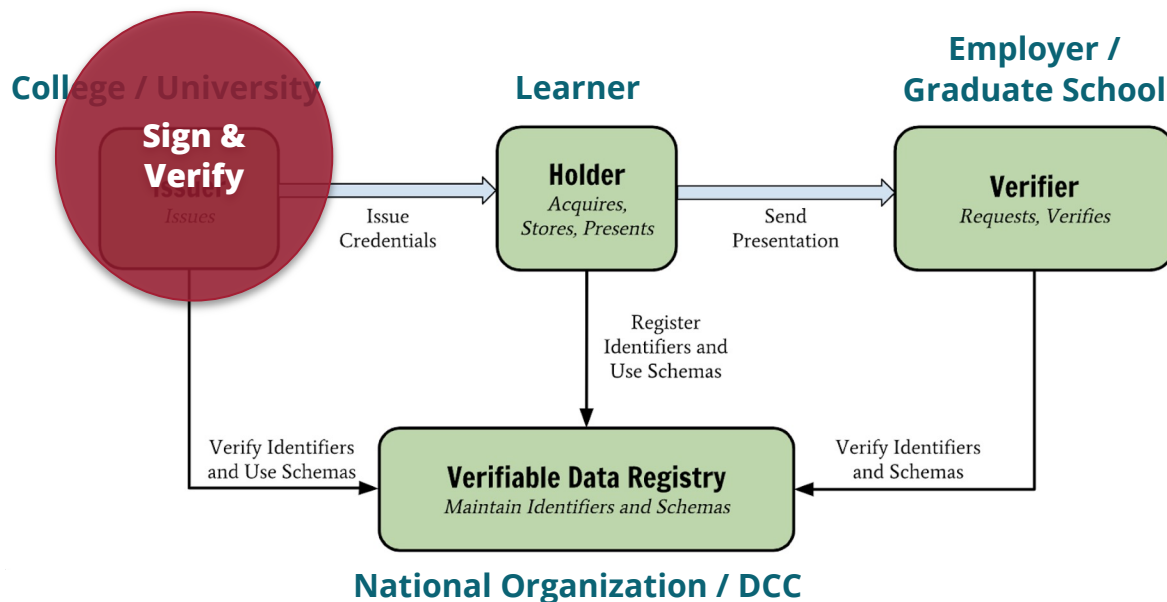- Licenses
- Membership
- Micro-credentials

Issuers

- Institutions (formal, informal, non-formal)
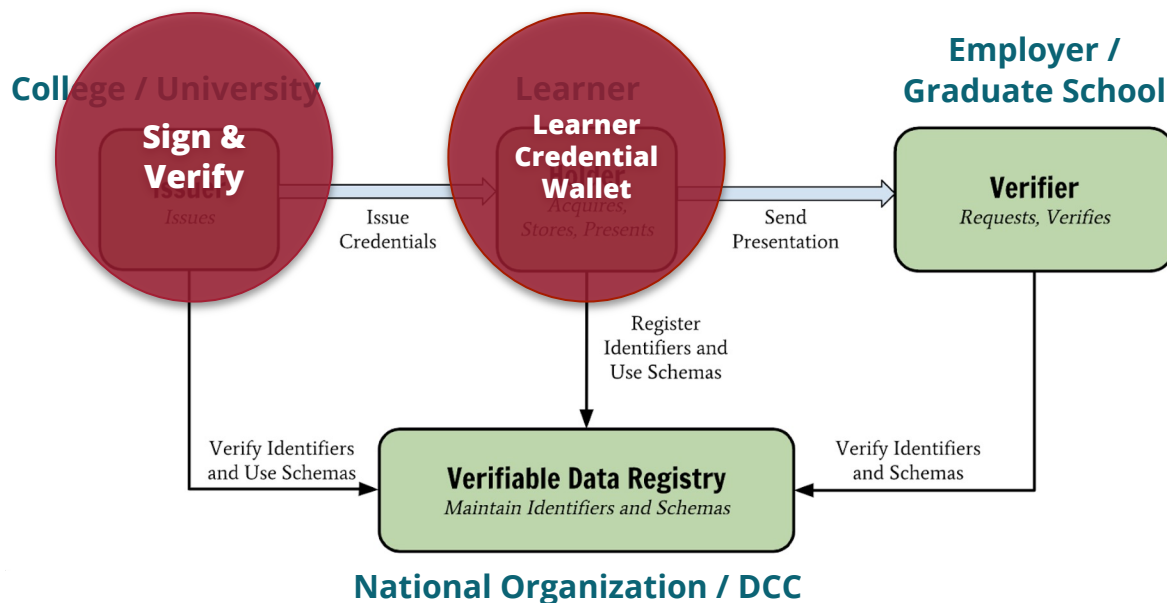- Employers
- Certification Bodies
- Peers

Using digital credential platforms & LMSes

Verifiable Credentials Ecosystem

College / University

Sign & Verify

Learner

Employer / Graduate School

Issuer
Issues

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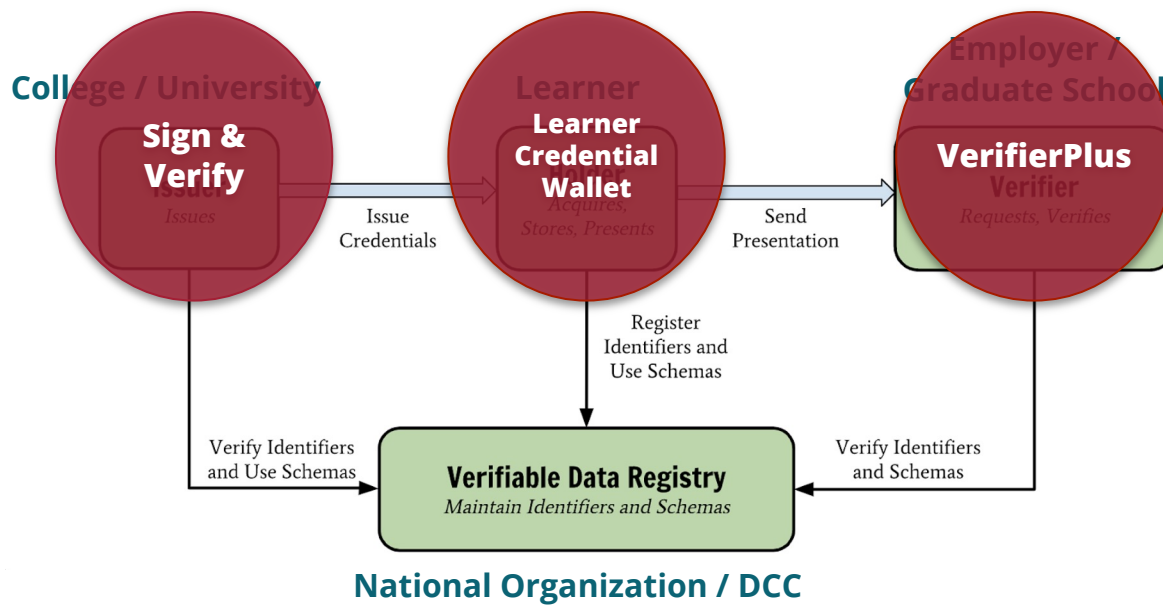
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Verifiable Credentials Ecosystem

College / University

Sign & Verify

Issuer
Issues

Issue Credentials

Learner

Learner Credential Wallet

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Acquires, Stores, Presents

Employer / Graduate School

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Maintain Identifiers and Schemas

Verify Identifiers and Schemas

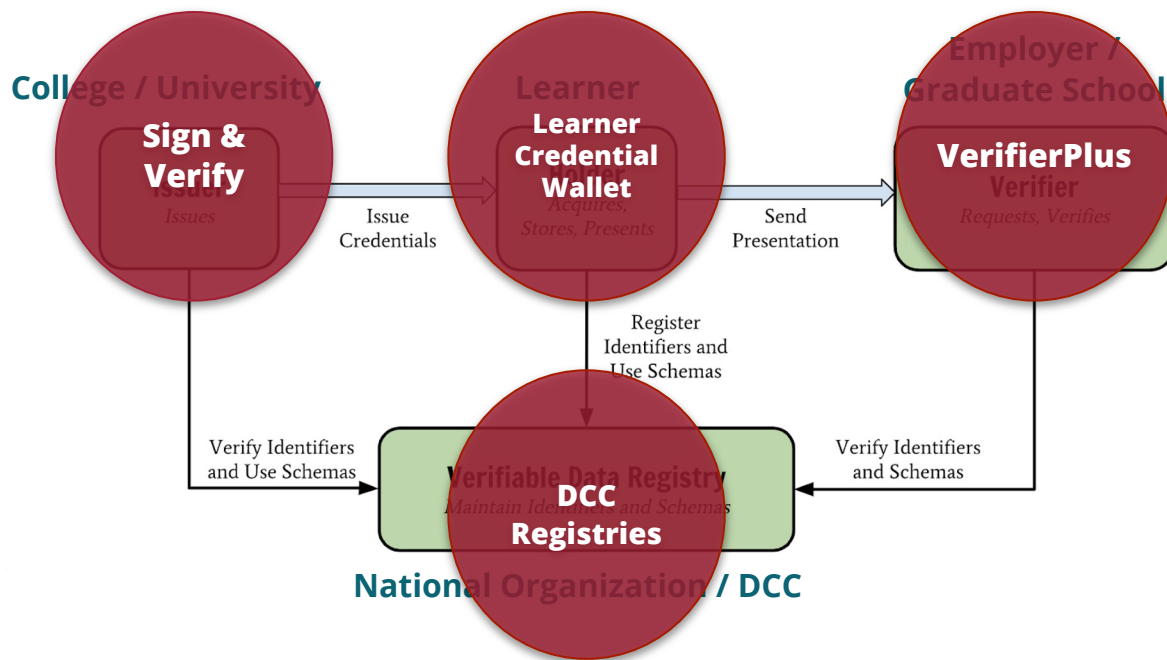**National Organization / DCC**

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DCC Registries

National Organization / DCC

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Sign and Verify

`sign-and-verify` is an open source headless API server (TypeScript + Express.js), Dockerized for deployment convenience, implementing the W3C CCG Verifiable Credentials API spec:

- **Issue** Verifiable Credentials endpoint. Low-level, backend service (clients POST an unsigned credential, and a signed VC is returned).
- **Verify** endpoints (for verifying Verifiable Credentials and Verifiable Presentations).
- an **Exchange** endpoint for complex and iterative verifiable credential issuance and renewal.

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About Learner Credential Wallet

- Published to Apple App Store and Google Play Store
- MIT Licensed open source
- Supports DCC values: learner control, open standards
- Key features
  - Passphrase to secure wallet, biometric support
  - Standards compliant: W3C Verifiable Credentials, Open Badges v3; VC-API
  - Add via QR code, deep link from email, web page or LTI module
  - Authenticate user before issue via OIDC call to institution Identity Provider, bearer token, SAML 2 (in progress, expected within the next month)
  - Share credential via file, public web link, shortcut to LinkedIn
  - Multiple user profiles each with distinct identifiers

Learner Credential Wallet

A place to store your learner credentials

Learner Credential Wallet is an open source mobile wallet developed by the Digital Credentials Consortium, a network of leading international universities designing an open infrastructure for academic credentials.

Learn more about the 2022 Learner Credential Pilot

Frequently Asked Questions

Learner Credential Wallet

A place to store all your credentials. They stay on your device until you decide to share them.

Quick Setup (Recommended)

Custom

Step 1 —— 2

Password

Setup a password to secure your wallet. You will not be able to recover a lost password.

Password

Confirm Password

☑ Use biometrics to unlock

Cancel   Next →

---

1 —— Step 2

Creating Wallet
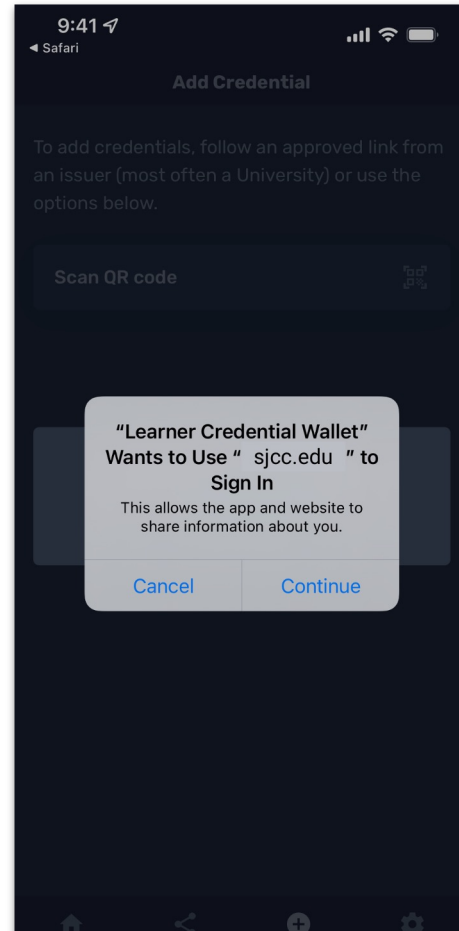
This will only take a moment.

✓
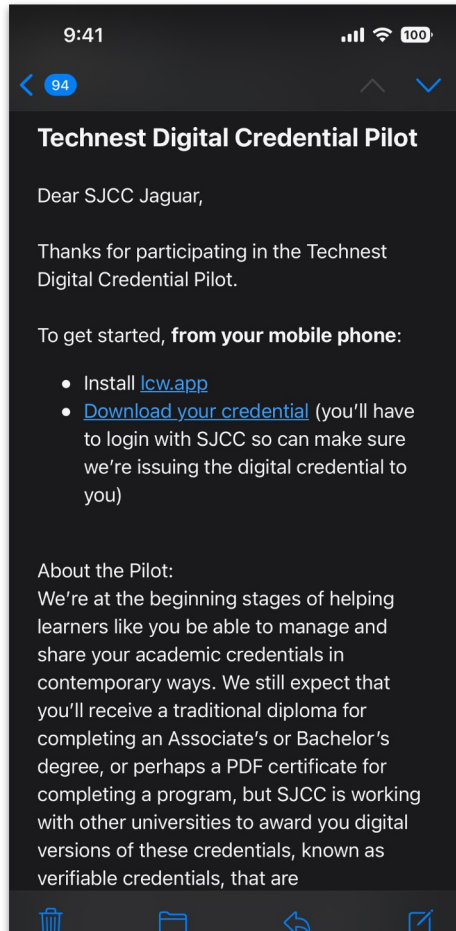
Take Me To My Wallet

Home

Looks like your wallet is empty.

Add Credential ⊕

Example from email to student, simulated authentication with IdP
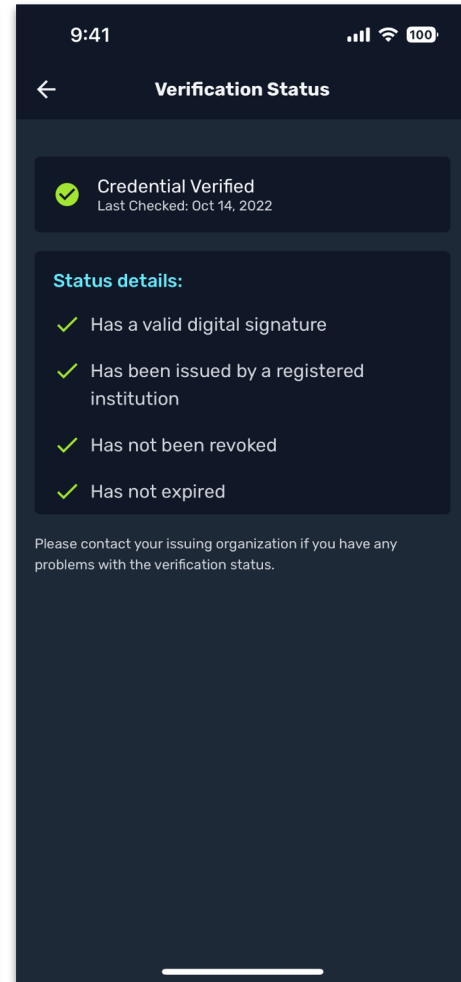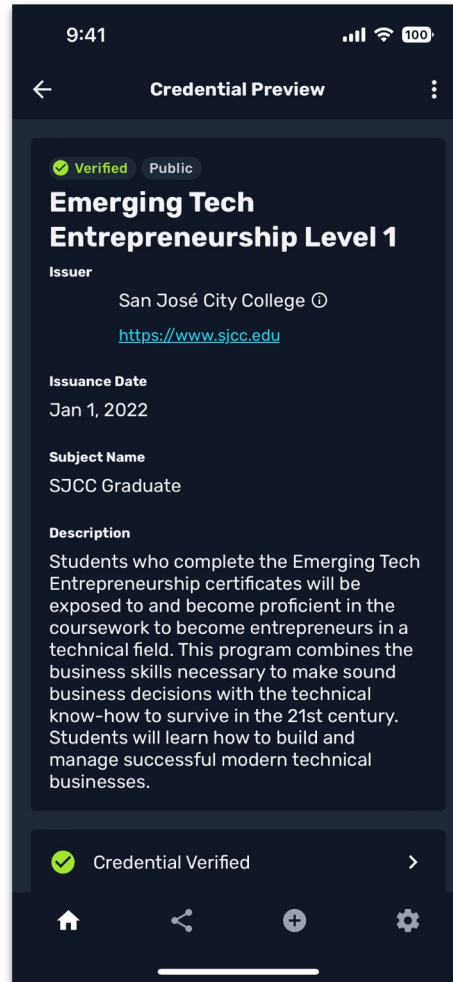
SJECCD SECURE LOGIN

Username

Enter your username

Password

Enter your password

Login

Unlock/Reset Password | Change Password

First time sign-in for students, please visit our ITSS Help Desk Portal Knowledge Base

If you are experiencing login issues where browser is landing back on this page, **PLEASE CLEAR BROWSER CACHE**, close browser and try again.

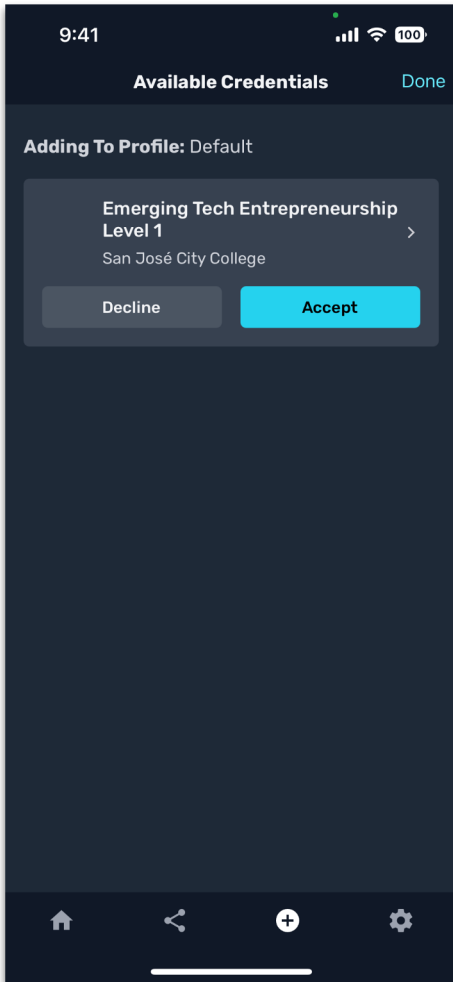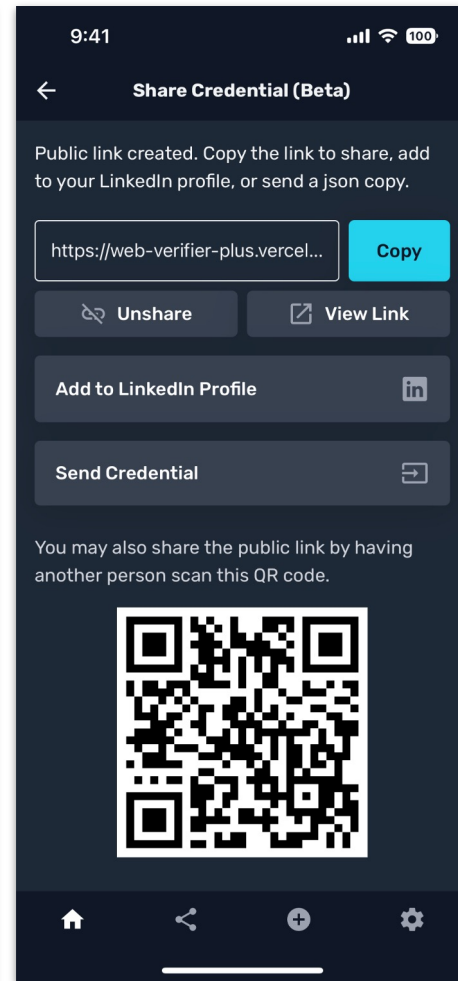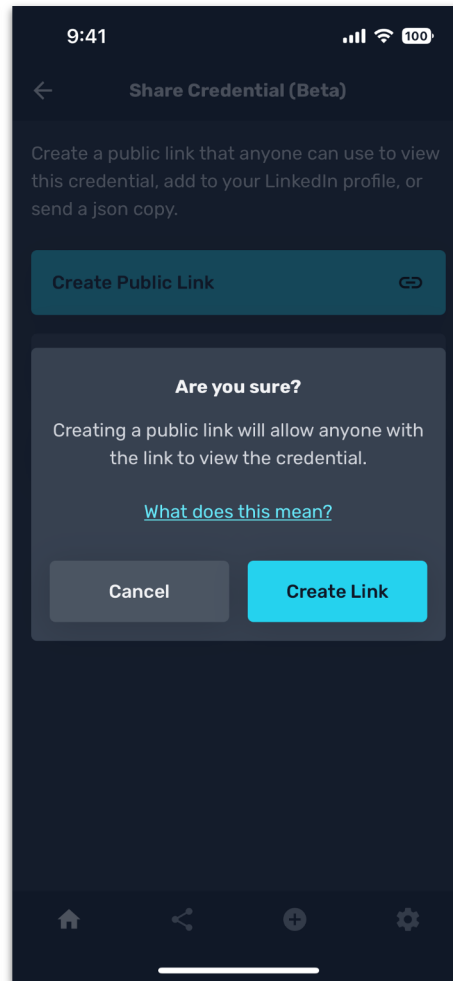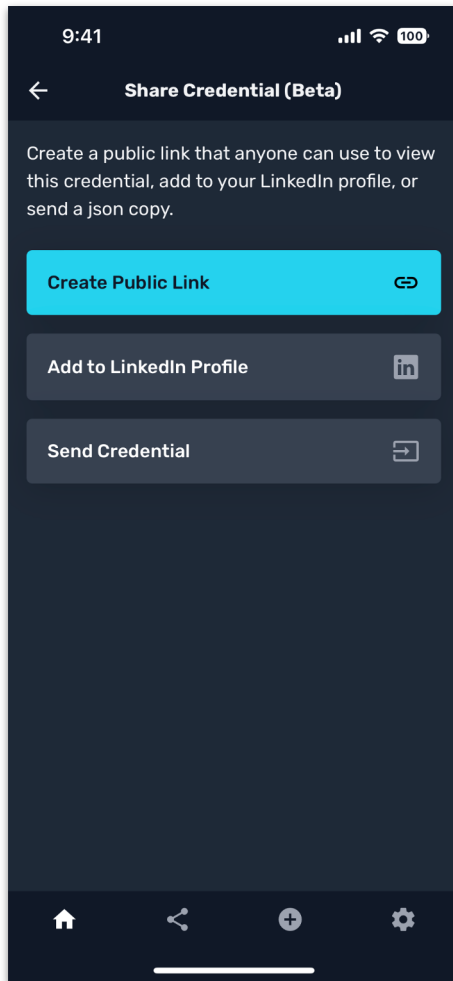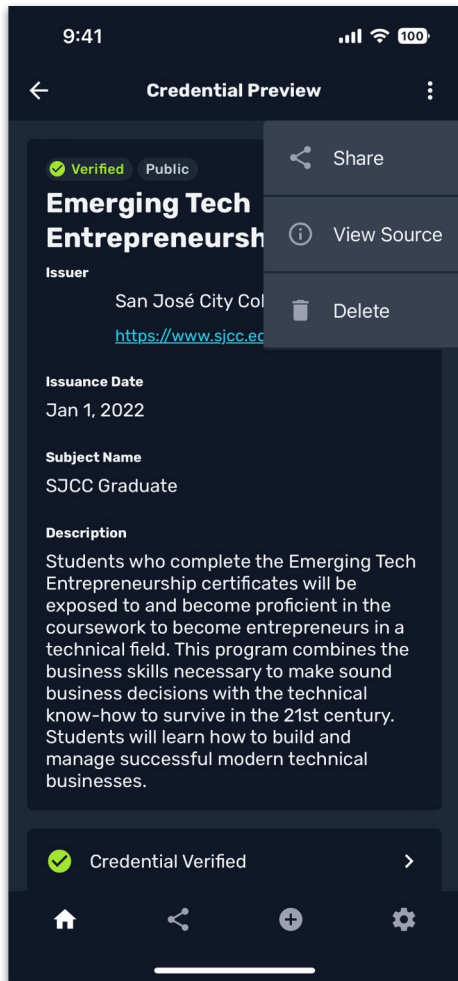**Screen 1 — Credential Preview**

← Credential Preview ⋮

Share
View Source
Delete

✅ Verified   Public

Emerging Tech Entrepreneursh

Issuer
San José City Col
https://www.sjcc.ec

Issuance Date
Jan 1, 2022

Subject Name
SJCC Graduate

Description
Students who complete the Emerging Tech Entrepreneurship certificates will be exposed to and become proficient in the coursework to become entrepreneurs in a technical field. This program combines the business skills necessary to make sound business decisions with the technical know-how to survive in the 21st century. Students will learn how to build and manage successful modern technical businesses.

✅ Credential Verified ›

Screen 2 — Share Credential (Beta)

← Share Credential (Beta)

Create a public link that anyone can use to view this credential, add to your LinkedIn profile, or send a json copy.

Create Public Link 🔗

Add to LinkedIn Profile 🔗

Send Credential →]

Screen 3 — Share Credential (Beta)

← Share Credential (Beta)

Create a public link that anyone can use to view this credential, add to your LinkedIn profile, or send a json copy.

Create Public Link 🔗

Are you sure?

Creating a public link will allow anyone with the link to view the credential.

What does this mean?

Cancel   Create Link

Screen 4 — Share Credential (Beta)

← Share Credential (Beta)

Public link created. Copy the link to share, add to your LinkedIn profile, or send a json copy.

https://web-verifier-plus.vercel...   Copy

🔗 Unshare   ⬚ View Link

Add to LinkedIn Profile 🔗

Send Credential →]

You may also share the public link by having another person scan this QR code.

Revocation

Status List 2021: https://w3c-ccg.github.io/vc-status-list-2021/

EXAMPLE 1: Example StatusList2021Credential

```
{
  "@context": [
    "https://www.w3.org/2018/credentials/v1",
    "https://w3id.org/vc/status-list/2021/v1"
  ],
  "id": "https://example.com/credentials/23894672394",
  "type": ["VerifiableCredential"],
  "issuer": "did:example:12345",
  "issued": "2021-04-05T14:27:42Z",
  "credentialStatus": {
    "id": "https://example.com/credentials/status/3#94567",
    "type": "StatusList2021Entry",
    "statusPurpose": "revocation",
    "statusListIndex": "94567",
    "statusListCredential": "https://example.com/credentials/status/3"
  },
  "credentialSubject": {
    "id": "did:example:6789",
    "type": "Person"
  },
  "proof": { ... }
}
```

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Learner Credential Wallet Authentication

- Oauth2
- Bearer token
- OIDC
- SAML2 (coming soon)

Authentication Challenges

- Every wallet needs to implement multiple authentication methods
- Learners may have multiple wallets or switch wallets
- Has proven difficult for issuers to configure their IdP within the wallet

DCC **DIGITAL CREDENTIALS CONSORTIUM**