

# Smart Diaspora 2023

10 - 13 Aprilie 2023,  
Timișoara

[www.diaspora-stiintifica.ro](http://www.diaspora-stiintifica.ro)

Eveniment aflat sub înaltul patronaj  
al Președintelui României



## Microcredentials and EBSI – integration with an educational platform / Micro-credențialele și EBSI – Integrarea într-o platformă educațională

PhD Student Victor Holotescu  
Lecturer PhD Andrei Ternauciu

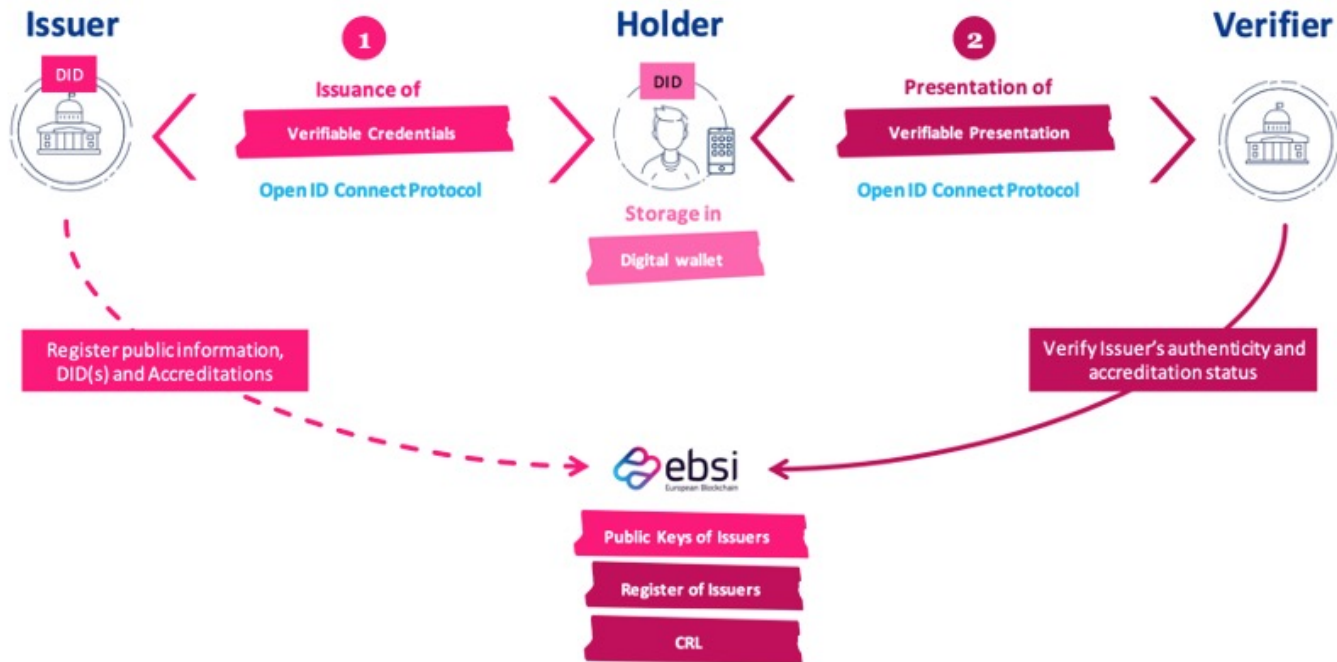


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# Verifiable Credentials workflow



# Verifiable Credentials workflow

More detailed description of workflow components

## GLOSSARY

### Verifiable Credentials

Verifiable credentials (VCs) are **an open standard for digital credentials**. They can represent information found in physical credentials, such as ID, passport, diploma, license, as well as new things that have no physical equivalent, such as ownership of a bank account.

They have **numerous advantages over physical credentials**, most notably that they're digitally signed, which makes them tamper-resistant and instantaneously verifiable.

## Digital wallets

### Stores

#### Identities

- *Represented by:*  
Set of asymmetric keys  
DID – Decentralized Identifiers

#### Verifiable Credentials\*

- Verifiable IDs
- Verifiable Accreditations
- Europass etc.

### Example of Wallets

Walt.Id

Gataca

Learner Credential Wallet (<https://lcw.app>)

MetaMask with Snaps

(<https://github.com/blockchain-lab-um/ssi-snap>)

## Trusted Data Registries

### Contains

DID Registries  
Trusted Issuer Registries  
Revocation Lists

### In the form of

EBSI Ledger  
Any other trusted ledger/blockchain

## Advantages for using Verifiable Credentials

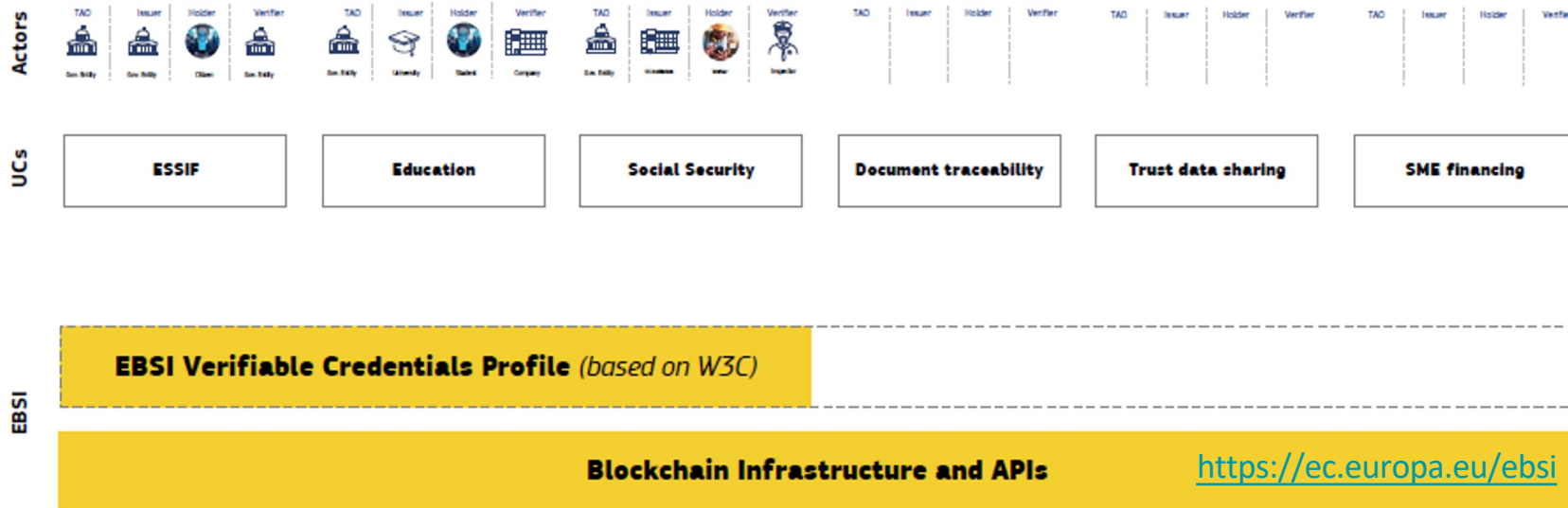
To support student mobility by applying EBSI Use Cases in a cross-border scenario to simplify the process of issuing/verifying/managing Bachelor/Master/PhD Diploma Credentials



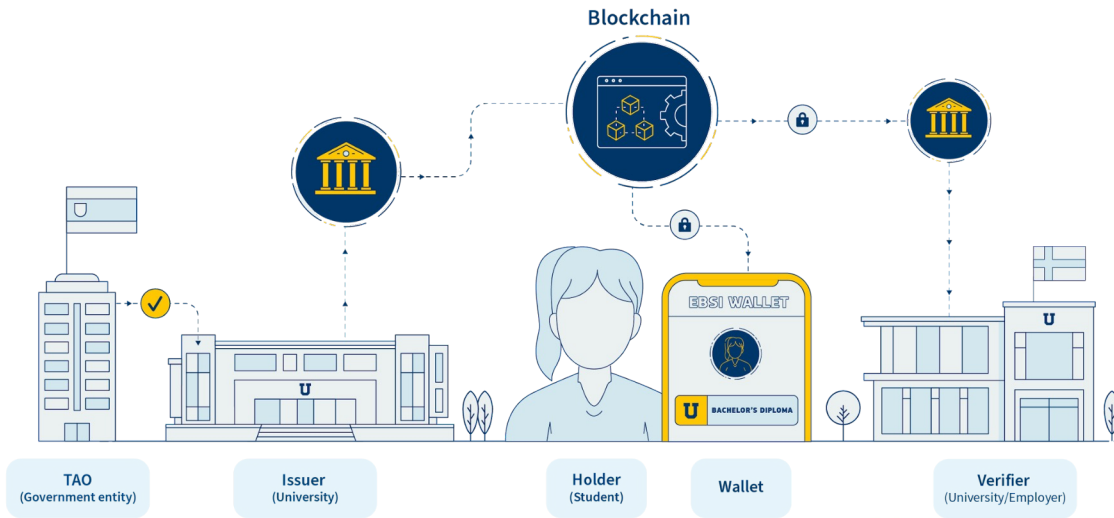
# (European Blockchain Services Infrastructure)

## What is **EBSI** ?

EBSI is user centric, decentralised and reusable in multiple contexts and use cases. It is based on open standards to stimulate interoperability and the creation of cross-border public services



# Verifiable Credentials on EBSI



## Standards

- ✓ W3C VCs & DIDs
- ✓ OpenID Connect

- ✓ High level of certainty that the issuer is trusted alongside the time of issuance
- ✓ High level of certainty that the holder is the one that the Verifiable Credential was issued to
- ✓ The holder keeps data control and ownership



# EBSI Early Adopters: Multi-University Pilot

2 European universities alliances, +18 universities from +15 countries

EBSI4RO participates in the EA Programme – July 2021 – May 2022



# EBSI Early Adopters: Cross-border Scenario



did:ebsi



Verifier  
Issuer

Diploma  
Credential



Holder

Diploma  
Credential



Student ID



Issuer



HELLENIC REPUBLIC  
National and Kapodistrian  
University of Athens  
EST. 1837



Verifier  
Issuer

Diploma  
Credential



# Current Scenario for issuing and verifying VCs at UPT

(1) Issuing credentials on EBSI4RO Demo Issuer

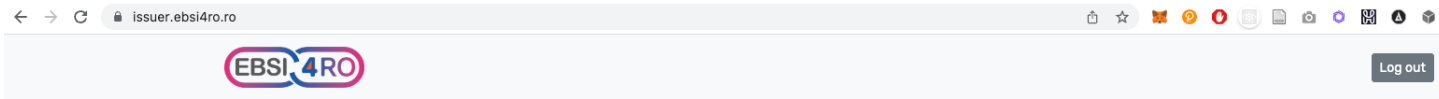


Sign in to the UPT  
Issuer Portal

Sign in with UPT

Sign in with eID

EBSI4RO, powered by walt.id



Hello, Anca Popescu

We have found 2 credentials for you.  
Please select the ones you want to be issued:

- Student ID document | [View details](#)
- Europass Diploma | [View details](#)

Confirm

Europass Diploma

Title: Bachelor of Science

UEFISCDI Certificate ID: 582590

Awarded by: University Politehnica Timisoara

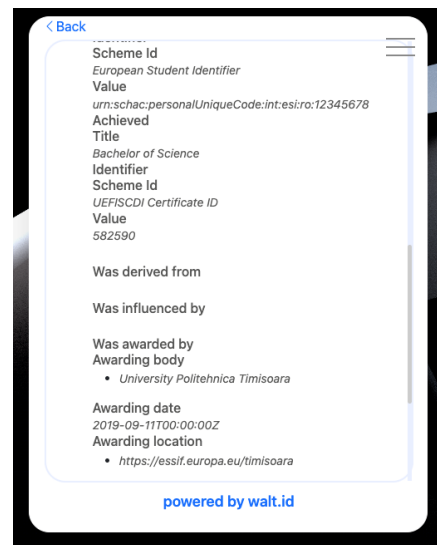
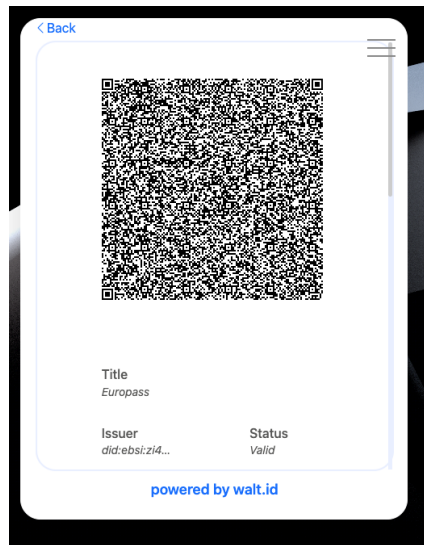
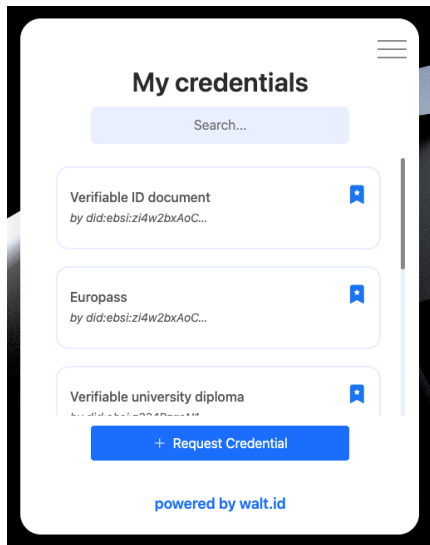
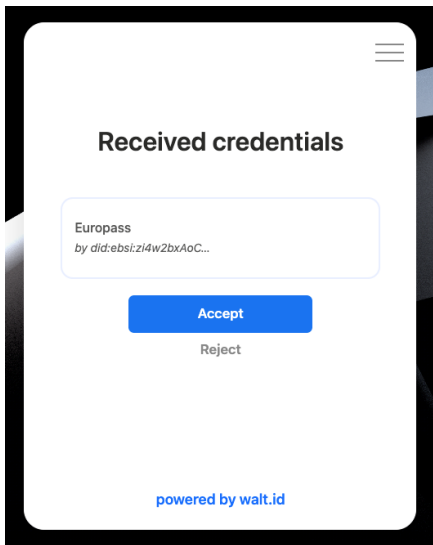
European Student Identifier:  
urn:schac:personalUniqueCode:int:esi:ro:12345678

Close

[View details](#)

# Current Scenario for issuing and verifying VCs at UPT (2)

Receiving credentials in an Open-Source Wallet



# Current Scenario for issuing and verifying VCs at UPT

(3) Verifying credentials by 3<sup>rd</sup> party

## YOUR CREDENTIAL IS VALID

### ✓ Signature

Verify the signature of the credential using the [public key resolved with the issuer's identifier](#).

### ✓ JSON schema

Verify the [data model](#) of the credential's type.

### ✓ Issuer DID

Verify the [issuer's DID](#) was found in EBSI DID registry.

### ✓ Subject DID

Verify the [subject's DID](#) was found in EBSI DID registry.

### ✓ Issued date

Verify the [issued.date](#) is before the current date.

### ✓ Valid from

Verify the [date.when.the.credential.is.valid](#) is before the current date.

### ✓ Expiration date

Verify the [expiration.date](#) is after the current date.

Content of your credential

```
{
  "@context": [
    "https://www.w3.org/2018/credentials/v1"
  ],
  "credentialSchema": {
    "id": "https://api.preprod.ebsi.eu/trusted-schemas-registry/v1/schemas/@x6b304591b86b7e5e4c8a713ddf84ee5810a56334827adda4e741f80b9aa49ed",
    "type": "FullJsonSchemaValidator2021"
  },
  "credentialSubject": {
```



Thanks, you just  
**presented credentials.**

VerifiableID

The verification was successful

Verification Policies

```
{ "SignaturePolicy": true, "ChallengePolicy": true,
  "VpTokenClaimPolicy": true }
```

Authenticated session established

- [View authenticated DID](#)
- [View session token](#)

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The verification was  
requested successfully

The confirmation code is:  
**HDJ2123F**



Confirmation code

HDJ2123F

Status

The document was issued

The accuracy of the information submitted with this statement can be verified based on the file.

# Current Scenario for issuing and verifying VCs at UPT (4)

Verifying credentials by 3<sup>rd</sup> party



RÉPUBLIQUE  
FRANÇAISE  
*Liberté  
Égalité  
Fraternité*



Université  
de Lille



Verifiable Credential  
issued by the fr.EBSI project  
[Learn more](#)



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## Certificate of completion of the diploma

[Check the validity of the diploma on the EBSI blockchain ?](#)

The President certifies that the following degree

**PHD IN COMPUTER SCIENCE**  
Thesis title: **APPLICATIONS OF MACHINE LEARNING IN CYBERSECURITY**

was awarded to

**ANCA POPESCU**  
[Verify the identity of the graduate on the EBSI blockchain ?](#)  
Date of birth: May 28, 1998  
Place of birth: Timisoara (Romania)  
European Student Identifier: ro:12345678

for the academic year 2021-2022  
with 180 European credits ECTS

Issued in LILLE (France), on May 19, 2022



**Régis BORDET**  
President of the University of Lille - France

Certificate translated by the University of Lille. Official version issued in French.

# EBSI VCs Plugin in UniCampus Moodle

## LMS Building wallet support in the Moodle Workplace certificate plugins

The plugin has the features that support traditional viewing/sharing experience and verifications which are further integrated into a VC stored in an EBSI Compliant wallet:

- Generate a PDF certificate for the user
- Save VC to wallet
- Wallet contains VC that is cryptographically signed by the configured DIDs of the emitting entity as well as the PDF certificate that can be verified on the website.

### Certificates settings

Issue certificates in user language  Default: No  
tool\_certificate | issuinglang

On multi-lingual sites when user language is different from the site language the certificates will be generated in the user's language, otherwise all certificates will be generated in the site default language.

Show share on LinkedIn  Default: No  
tool\_certificate | show\_shareonlinkedin

If the "Share on LinkedIn" button should be shown on the my certificates page

LinkedIn organization id  Default: Empty  
tool\_certificate | linkedinorganizationid

The id of the LinkedIn organization issuing certificates.

Where do I find my LinkedIn organization id?  
 1. Log in to LinkedIn as the admin for your business' Organisation Page  
 2. Check the URL used when you are logged in as the admin. (The URL should resemble "https://linkedin.com/company/xxxxxxxx/admin")  
 3. Your LinkedIn organization id will be the seven-digit number in the URL. (Shown as "xxxxxxx" in the step above)

Show "Add to Wallet" button  Default: No  
tool\_certificate | show\_addto\_ebsi\_wallet

If the "Add to Wallet" button should be shown on the my certificates page

[Save changes](#)

### Enable "Wallet VC Issuance"

#### My certificates

These are the certificates you have been issued by either email or downloading manually.

Download table data as  [Download](#)

Name	Date issued	Expiry date	Code	File	Share on LinkedIn	Add to wallet
Certificate Test	Monday, 3 April 2023, 10:02 am	Never	2724883383AX			

Option to add Certificate to wallet

### Certificates

- [Manage certificate templates](#)
- [Verify certificates](#)
- [Certificate images](#)
- [Manage wallet connections](#)
- [Certificates settings](#)

Manage wallet connections to integrate multiple EBSI Compliant Wallets (Walt.ID, Gataca, VIDwallet)

# Envisioned Issuance Portal

Aggregating multiple LMS and academic diplomas

 **Ion Ionescu** ⋮

 **Universitatea Politehnica Timisoara**

 **Diploma de licenta** ⋮

 **Campus Virtual**

 **Diploma curs: Tehnologii Multimedia**

 **Unicampus**

 **Certificat curs Abilitati digitale**

 **Certificat curs Blockchain EBSI4RO**



## Diplomă de Licență

**Universitatea Politehnica Timișoara**

În baza absolvirii **Ciclului I - Studii universitare de licență** și a promovării examenului de finalizare a studiilor din sesiunea **IUNIE 2022** la propunerea **Facultății de Electronică, Telecomunicații și Tehnologii Informacionale**

*conferă*

Domnului **Ion Ionescu** absolvent al **Facultății de Electronică, Telecomunicații și Tehnologii Informacionale**, titlul de **Inginer**





Thank you!

PhD Student Victor Holotescu

<https://github.com/victorholo>

Lecturer PhD Andrei Ternauciuc

<https://cm.upt.ro/en/tutor/andrei-ternauciuc/>

Politehnica University of Timisoara