Credentials in **blockchain**

CowStamp

my certificate, my proof

CowStamp.com

ASSESSORS

CowStamp

The platform that allows to manage verifiable digital credentials using the most advanced standards with **Blockchain** registration.

my certificate, my proof

Digital credentials, let's focus

To understand and explain what is a **digital credential**, before we need to define some key concepts.

¿What is a digitally verifiable credential?

Digitally verifiable credential

It is a digital document with a defined structure called **badge**, that allows an issuer to certify some given information about a recipient.

Digital credentials registered on the *blockchain* allows to prove the recipient they acquired some knowledge or some other fact to certify

Issuer **Credential** **Recipient**

Some Basic concepts

Basic concepts

Certificate

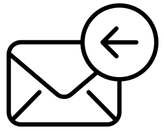
File issued by a trusted entity providing some information about a digital identity

Badge

Data structure containing information, fact or achievement being acknowledged

Issuer

Entity who creates the credential



Recipient

Also called subject, is the person or entity the badge is being awarded to.

The origin of credentials

Mozilla Foundation & IMS Global suggested a digital credential issuing protocol creating an open-source international standard called Open Badges, in the late 90s.

The *blockchain* technology changes everything. It provide new tools so the old standards need to adapt so they can offer a new range of features towards data sovereignty,

Everything changes with blockchain

Credentials on the *blockchain*

The disruption of the *blockchain* technology forces to adapt the actual standards for their inclusion. This is why **MIT Media Lab** extends the implementation of the **Open Badges** standard with a new standard called **Blockcerts.** This standard allows the registration of digital credentials using *blockchain* technologies with the necessary information to be verified.

The use of the **Blockcerts** standard introduces the need to transact on a *blockchain* to register a proof of the digitalized documents and so, take advantage of the *Blockchain* capabilities: **digital signature, timestamp, information distribution and data immutability.**

Certificate Oriented Web

Credentials on the *blockchain*

Nonetheless, the **Blockcerts** standard v2.1 does not define the management of the issuer identity, being an incomplete system, one can not validate the identity of the issuer. So, this credentials can not be legally binding per se.

To go through this limitation, **BTC Assessors** proposes a new standard, **Cowcerts**, allowing the management of the issuer's identity, raising the usability of digital credentials making possible for them to have legal validity.

CowStamp platform is based on the **Cowcerts** standard, being compatible with all the mentioned standards.

Blockchain: the revolution of certification

Blockchain technologies revolutionized the **verified digital credentials** business, making it possible to validate the authenticity and the date of issuance without a trusted third party in a decentralized registry

¿What brings the certification in blockchain?

Introduction

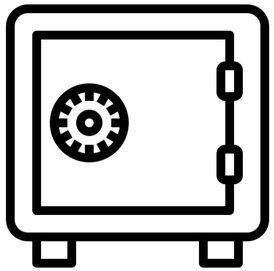
Digital Signature

The **digital signature** is a key aspect on the credential certification in ***blockchain***.

Every time we register a proof on the *blockchain* we need to digitally sign it. This is why every proof goes related to the issuer digital signature.

¿What brings the certification in blockchain?

Introduction



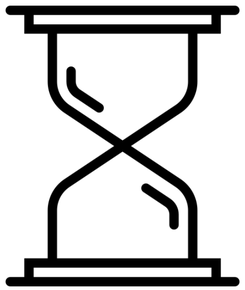
Immutability

One of the most important characteristics of well-designed and implemented *blockchains* is the **immutability of the registers** included in their *blocks*.

Being able to register a digital credential proof on the *blockchain*, guarantees us that the registered proof has not been corrupted over time.

¿What brings the certification in blockchain?

Introduction



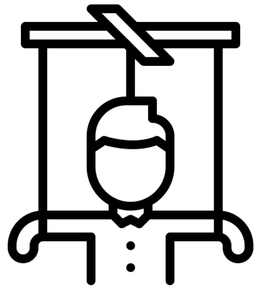
Timestamp

One of the main features of the *blockchain* is the **timestamp** included in each block.

The ***timestamp*** allows to validate in which moment was **registered a digital credential**, avoiding possible frauds or forgeries on the issuing date. And as the *blockchain* is decentralized, the timestamp too and therefore we don't rely on a centralized timestamp authority (TSA).

¿What brings the certification in *blockchain*?

Introduction



Sovereignty

Blockchain technology allows us to build an ecosystem where each and every user has **control of his information**, making it possible to share only the information that matters in every case, in a format that can be verified without showing unnecessary sensitive data.

In this way, credentials contain only the necessary **information to be verified**, protecting the user identity and avoiding abusive control from third parties of the users' data.

Digitally verifiable credentials are the future of certification, and the future is **now**!

¿How can I manage my verifiable credentials?

CowStamp

Building
the future
Block by Block

¿What is CowStamp?

CowStamp

The digital credentials management platform that allows to create issue and receive verifiable credentials registered on the ***blockchain,*** compatible with **Blockcerts** and following the **Cowcerts** standard.

¿what offers CowStamp?

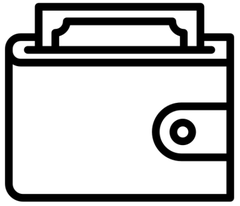
Características

Digital identity verification

Allows to verify credentials issuers and recipient identity through social media and/or the digital certificate issued by a country or accredited entity (X.509).

¿Que ofrece CowStamp?

Características



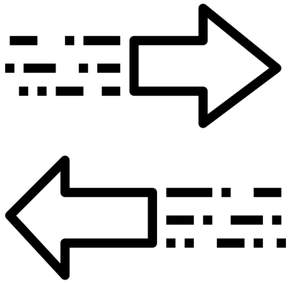
Usable in multiple wallets

CowStamp integrates with the the most popular **wallets*, making it possible to handle** the cryptographic keys in the safest possible way without forgetting the usability of the platform. We can then register into **multiple *blockchains the* wallet of our choice**.

Currently the only published integration is with the **MetaMask wallet*

¿Que ofrece CowStamp?

Características

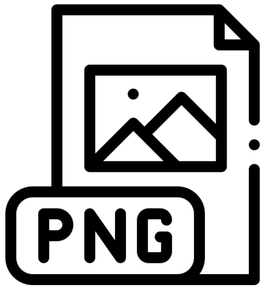


Issuance and reception of credentials

It is easy to issue and receive **credentials**, through a user-friendly entourage allowing to see, manage and validate verifiable credentials on the simplest and fastest way

¿Que ofrece CowStamp?

Características



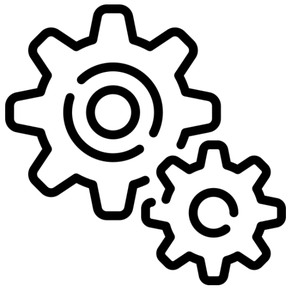
Understandable credentials format

The issuing of digital credentials, with **CowStamp** is done in a **comprehensive format** for all the devices thanks to the use of **PNG*** open format file.

**Work in progress, not yet published*

¿Qué ofrece CowStamp?

Características



Accepting multiple schemes

The implementation of **multiples badge *schemes*** on the **Cowcerts** standard makes possible to create and verify more complex credentials, as a new feature in the sector.

Because custom use cases will require custom verification needs, we provide schemes so every user can choose their own custom verification steps.

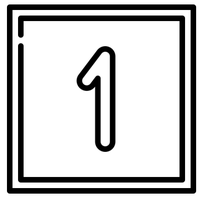
¿How to issue a credential with CowStamp?

The issuing of a verifiable digital credential with **CowStamp** is **highly simplified.**

By just signing up in the platform and following 5 simple steps, we can start issuing our credentials.

¿Who is issuing?

Credentials in 5 steps



Create an issuer of the credential

We first need to define **who is going to issue** the credentials, being an institution or an individual, we create with **CowStamp** an **issuer of credentials**.

¿Is the issuer verified?

Credenciales en 5 pasos

Verify the identity of the issuer

To be able to give legal validity to the credential, is mandatory to generate **proof of identity** of the issuer.

In this goal, **CowStamp** allows to establish a relation between the digital identity of the issuer on the *blockchain* with their profiles in **social media, DID** or with other **digital certificates** issued by trusted institutions.

¿What information is being certified?

Credenciales en 5 pasos

Define a badge’s information

The credential creation process involves specifying the **content of the badge being awarded**. Therefore we must need the achievement or fact the credential certifies.

¿Quién es el receptor?

Credenciales en 5 pasos

Assign a credential recipient

To issue a credential, we need to **assign the badge a recipient or subject**. To do that, the issuer will have to introduce the data they want to identify the recipient with.

Registramos la prueba

Credenciales en 5 pasos

Register the credential in the blockchain

Registering the credential in the *blockchain* will **register an immutable proof of the integrity and authentication of the credential** by storing digital signatures with a timestamp for its posterior verification.

I have my verifiable credential, ¿now what?

When some issues us a verifiable credential, **we can download in the platform a digital file in JSON format** that can be shared and verified easily as any file.

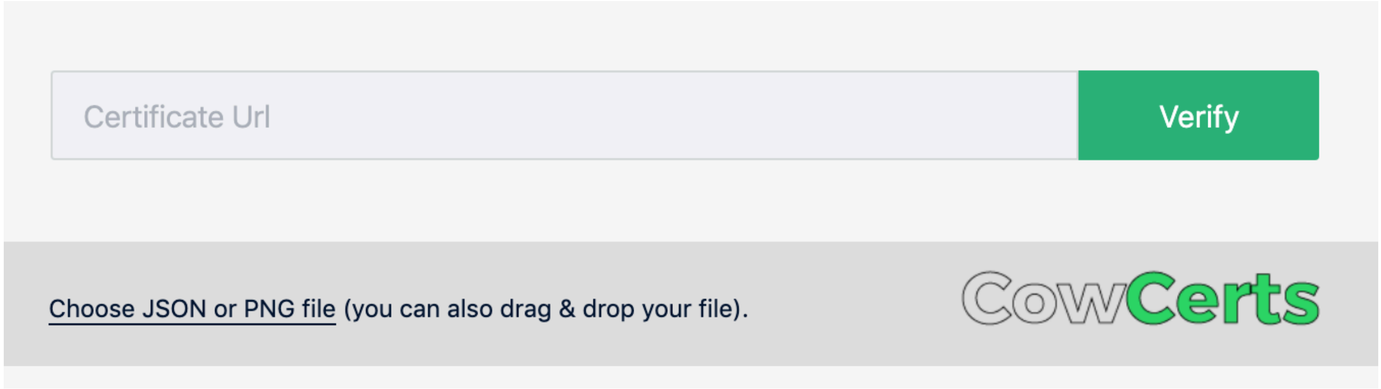
¿Cómo se valida?

Validador

Verify my credential

To embrace all digital credential features, it's basic to be able to share them with whoever we want and that they can **verify it independently without requiring a third party, neither the issuer or the credential recipient**.

Cowcerts provides an **open source, enterprise grade digital credentials verifier** implemented in Javascript that cares about identity and trust.



Educación

El Gobierno de Malta, y posteriormente el *Govern d'Andorra,* han sido los primeros países en implementar mecanismos de emisión de títulos académicos con registro en la blockchain, siendo el gobierno de Andorra el primero en aplicar un estándar que válida la identidad del emisor (Cowcerts).

La aplicación de la emisión de títulos en formato digital siguiendo el estándar de Cowcerts ha permitido al sistema educativo:

- Agilizar la comunicación entre el ministerio y universidades.
- Disminuir los costes de emisión de los títulos y el suplemento europeo.
- Facilitar el acceso a las credenciales digitales por parte de los estudiantes.
- Automatizar la validación de documentos y firmas digitales.

Educación

Actualmente, y debido a los costes y complejidad del proceso la certificación académica en formato analógico, no se reconocen los conocimientos adquiridos hasta completar un conjunto determinado de estos agrupándolos bajo el nombre de una titulación académica.

La aplicación de credenciales digitales permite modificar este paradigma, creando credenciales de conocimiento a medida que se van adquiriendo. De este modo sería factible:

- Demostrar los conocimientos obtenidos antes de finalizar una titulación académica.
- La convalidación de asignaturas automáticamente.
- La concesión de becas meritocráticas de forma automática.

Sanidad

Las credenciales digitales pueden tener un peso importante a la hora de construir una historia clínica soberana, creando credenciales por parte de los profesionales sanitarios que validen los actos médicos realizados, permitiendo así al usuario ser propietario de su historial médico y pudiendo compartir su información sin depender de una institución.

Un ejemplo de aplicación en el entorno sanitario y historial clínico sería la transformación del carnet de vacunas. Actualmente, en la mayoría de países el carnet de vacunas es en formato analógico, la digitalización de este se podría realizar utilizando credenciales digitales. De este modo el receptor de la vacuna obtiene un credencial con la información de la vacuna inoculada, el profesional que ha realizado el acto y del momento en que se ha realizado sin posibilidad de ser manipulado a posteriori.

Sanidad

- Agiliza en la emisión y gestión de credenciales verificables
  Las credenciales que emite al instante el profesional cualificado, son gestionadas de forma digital evitando pérdidas o robatorios y facilitando la posibilidad de compartir la credencial en caso de ser necesario.

- Optimización de recursos
  La transformación del formato de soporte de la credencial (analógico/digital) minimiza los recursos necesarios para emisión, conservación y validación del documento.

- Permite verificar las credenciales de forma descentralizada
  Las credenciales soberanas nos permiten validar el contenido de las credenciales en cualquier parte del mundo sin depender de un servidor central, permitiendo limitar el tiempo que se comparte una credencial.

- Imposibilidad de manipular los datos
  Al registrar a la blockchain las credenciales es imposible manipular el contenido y la marca de tiempo. Por ello se puede demostrar en momento en que se registro el certificado, sin la posibilidad de indicar que un evento se efectuó en otro.

Automoción

La gestión de los documentos asociados al vehículo como son la cartilla de circulación, el seguro del vehículo o la verificación de la inspección técnica, son los documentos asociados al vehículo que acreditan que podemos circular. La gestión de esta documentación no siempre es lo ágil que el usuario desea y al ser en formato analógico la probabilidad de no llevar toda la documentación en el vehículo es alta.

Aplicar el sistema de credenciales verificadas en blockchain en el sector de la automoción, permitirá la validación de la documentación asociada a un vehículo sin la necesidad de tener que llevar dicha documentación en el interior del vehículo. Al mismo tiempo el se podría incrementar la seguridad en las vías de circulación al poder comprobar de forma automática mediante cámaras de tráfico, si un vehículo tiene toda la documentación para poder circular.

CowStamp's roadmap

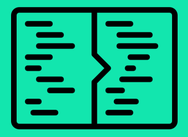
IPFS storage support

Semi-custodial wallet service

Embedded JSON in a PNG

Badges store

Fully implement and support DIDs



Badge schemes

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