catalyst

CASE STUDY

# *DECENTRALISED TIME STAMPING*

Time-stamping in its simplest form is the association of an electronic fle with an accurate time and date. However, the time-stamp must be trusted, as simply adding a time and date to a fle could be trivially manipulated and so must fulfl specifc requirements:

**Accurate** – The time and date held on the time-stamp must be accurate.

**Tamper-Proof** – Once the time stamp has been added to a document that time stamp must not be changed or removed.

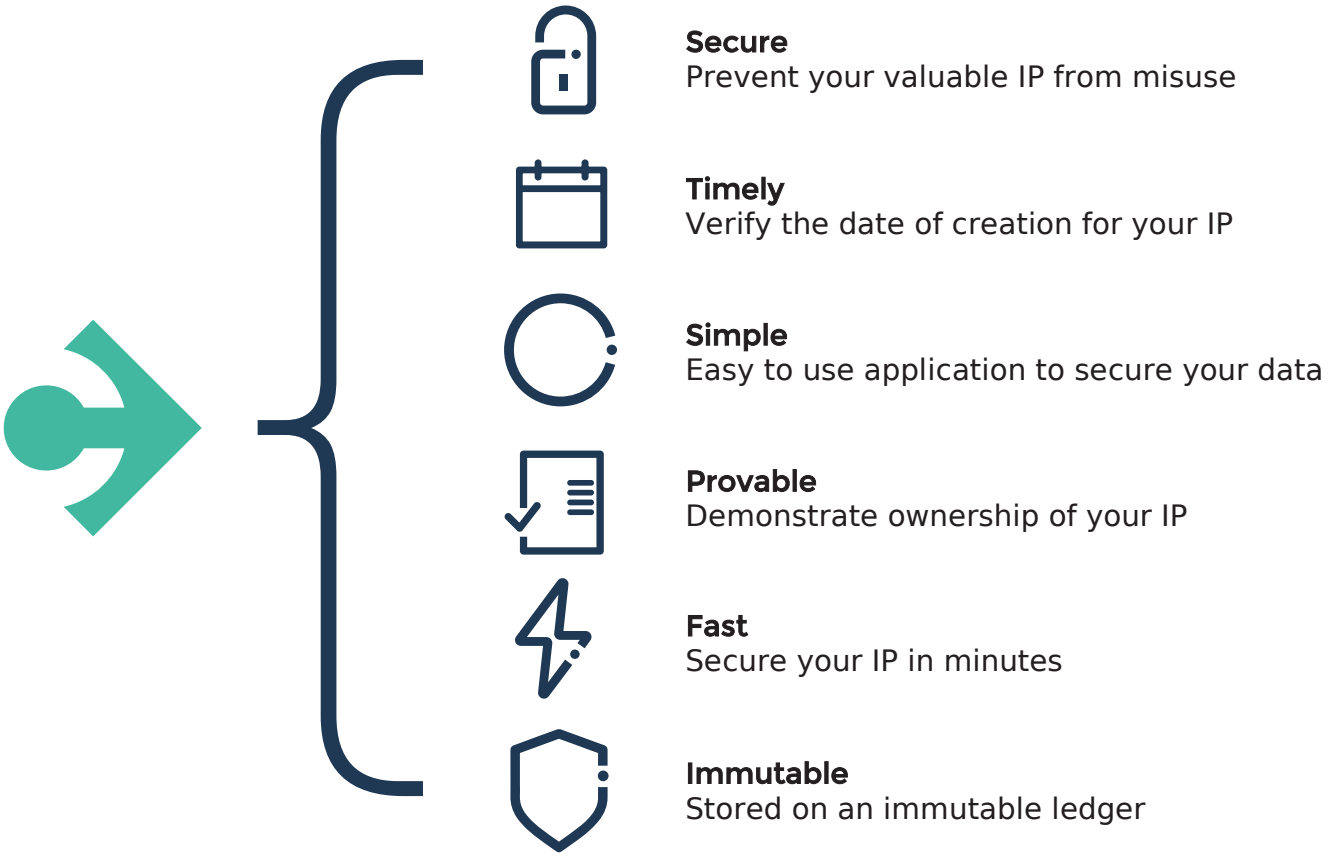
**Persistent** – The time stamp proof must always be available to the user.

**Traceable** – The time stamp and document must have a clear association with an entity, whether that be the author or an organisation.

**Multifaceted** – The time-stamp must be able to be used on many diferent fle types.

Using decentralised technologies time stamped proofs can be immutably recorded and thereby be persistent and impossible to change, reverse or manipulate.

Theft of Intellectual Property (IP) costs up to $500 billion dollars a year [1] with proof over who invented an idea typically very hard to demonstrate, it is often difcult to be protected from this kind of cyber-crime leading to lengthy legal recourse. Through time stamping documents and adding proof to an immutable ledger proof of ownership can be demonstrated at low cost with no expensive legal checks. Using the Timescribe time stamping tool, it will allow the user to  regain control over there IP.



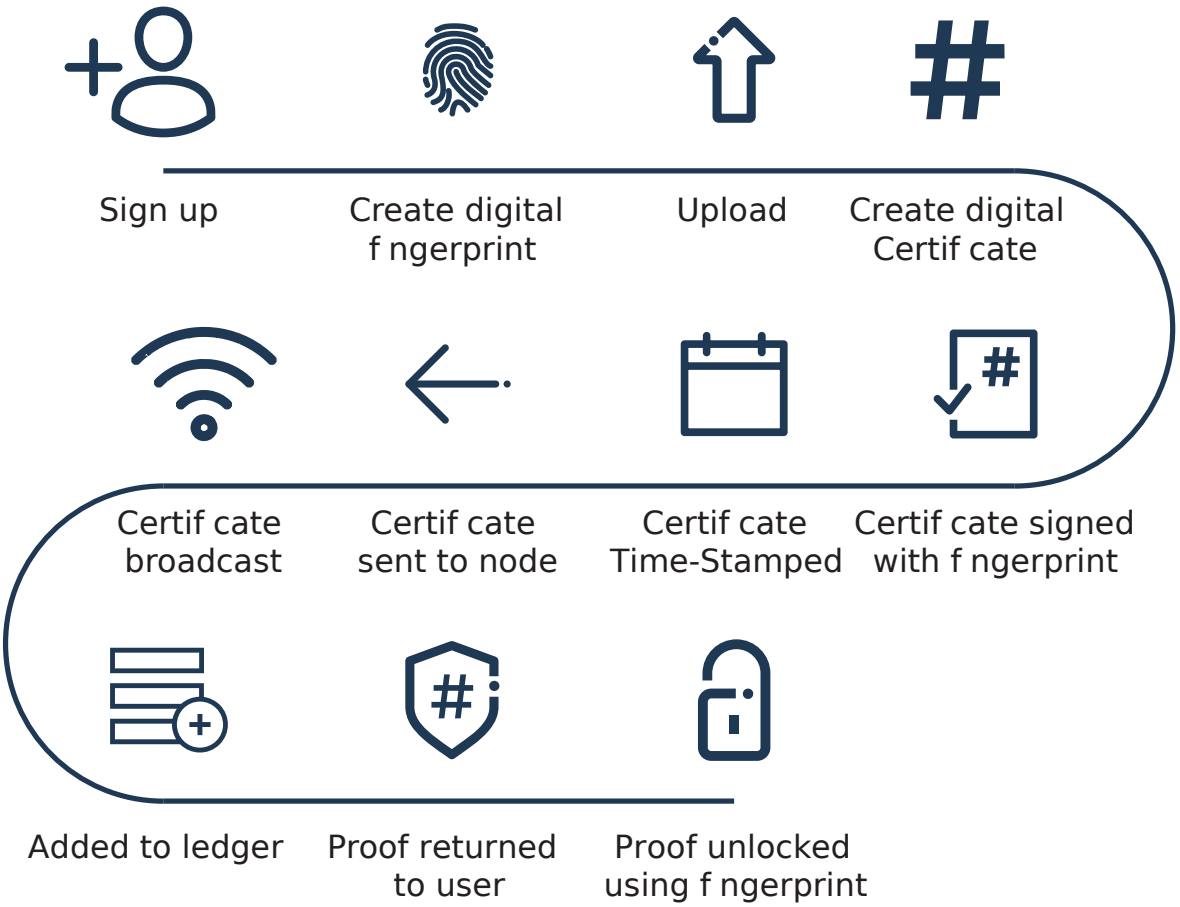
## How does it work?

Each user when signing up can generate a key, this key represents the users digital signature and provides infallible verifcation that the timestamps correspond to said user. Once a fle has been uploaded it is compressed into a hash, this hash is a compressed version of your document. The digital fngerprint is added to this hash along with a time-stamp. This is then uploaded to a decentralised network. This is where evidence is immutably stored forever. Through decentralised storage there is no single point of failure, so the evidence is always accessible.

**Provable Data Integrity** - The Catalyst time-stamping tool allows you to demonstrate through your own personal digital fngerprint, this fngerprint allows a user to simply demonstrate that they are in fact the person who uploaded the fle frst.

**Usability** – Through our tool virtually any fle types, including photos, audio fles and written documentation can be timestamped securely and quickly.

### Time Stamping process




**Immutable Trust** – The time-stamp relating to the document submitted will be available permanently and can never be deleted from the ledger giving you lasting assurance over your IP. This also means that once stored the time-stamp can not be changed or manipulated in any way.

**Legally enforceable** – Digital signatures have been made enforceable by law across many jurisdictions [2, 3]. Thereby making transactions that have been signed by a user using their digital fngerprint legally binding. This means that a fle that has been timestamped and signed with a user's digital fngerprint is legally binding.

**[1]** Intelisecure.com. (2019). Theft of Intellectual Property Costs More than you Think -. [online] Available at: https://www.intelisecure.com/theft-of-intellectual-property-costs-more-than-you-think/ [Accessed 1 Nov. 2019].

**[2]** Eur-lex.europa.eu. (2019). EUR-Lex - 31999L0093 - EN - EUR-Lex. [online] Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A31999L0093 [Accessed 1 Nov. 2019].

**[3]** Fdic.gov. (2019). The Electronic Signatures in Global and National Commerce Act (E-Sign Act). [online] Available at: https://www.fdic.gov/regulations/compliance/manual/10/x-3.1.pdf [Accessed 1 Nov. 2019].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