envilope

The World's First Blockchain Postal Service

Yellow Paper

Version 1.8 April 30, 2018

They say privacy is a thing of the past
we says it's the future

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1. Centralized System Technical Detail

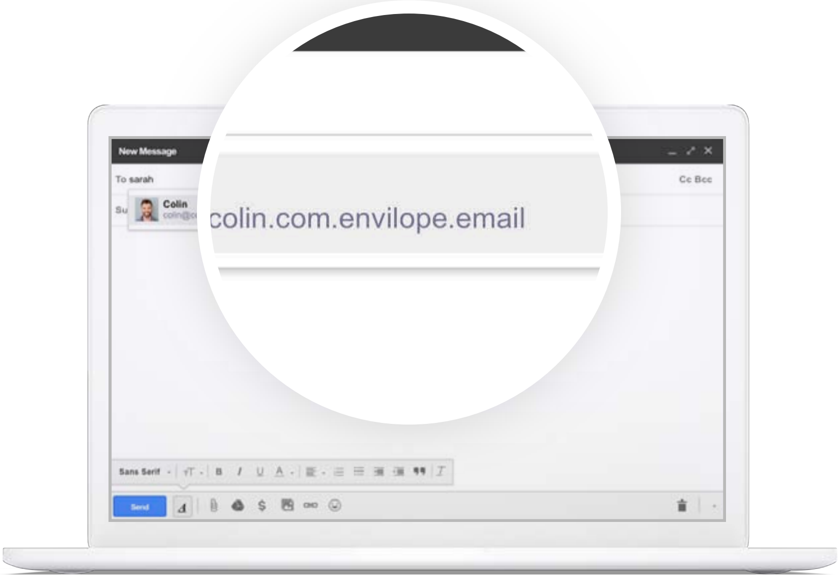
In addition to giving users the ability to create Virtual Envilopes via a full GUI interface in SaaS, iOS and Android apps, as well as MacOS and Windows Desktop versions, Envilope is introducing another innovative and truly unique product to enhance the Envilope experience.

1.1 Introducing the Envilope Virtual Assistant

It is called the Envilope Virtual Assistant (EVA), and it will give users even more freedom, control, and customization over the sending of content online. The only prerequisite to using the Virtual Assistant is that users have the ability to send an email and have an active Envilope account.

The Virtual Assistant allows anyone with an email client and an Envilope account to send communications within a sealed electronic envelope, our Virtual Envilope. Users have the ability to send their Virtual Envilope with the Blockchain Recorded Delivery option turned on, ensuring all actions relating to the delivery of the Virtual Envilope will be Envilope BlockStamped.

1.2 Initiating a Blockchain Recorded Delivery of a Virtual Envilope



The Virtual Assistant can be used from any program currently utilized to send email. Simply add ".envilope.email" onto the end of any email address and this will initiate the creation of a Virtual Envilope when sent.

Compose an email as normal

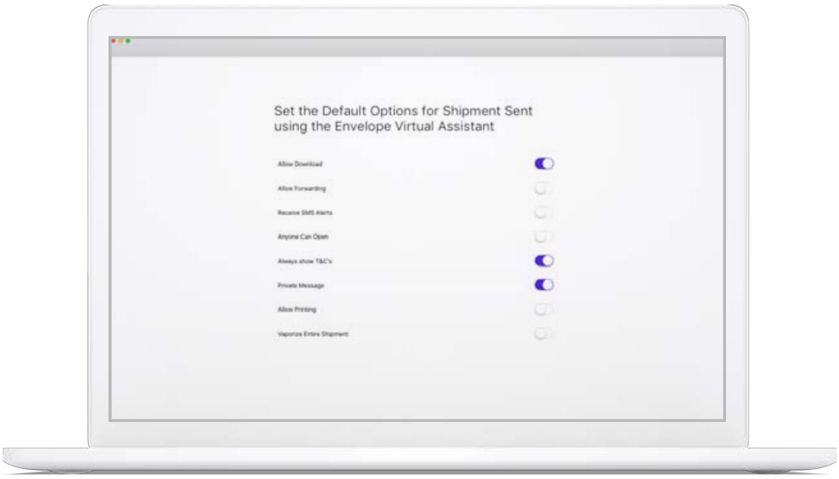
When composing an email to be sent via the Virtual Assistant, an Envilope PIN must be included in the body of the email. A PIN will be issued upon creation of an Envilope account. The PIN can be found in the 'My Envilope' section of the web, desktop, or app. All the text in the body of the email preceding the PIN will form the initial message of the Envilope delivery. The initial message is what that the recipient sees before opening the Virtual Envilope.

Attachments

Any attachments added to the email message will be put inside the Virtual Envilope and only be viewable after the recipient has accepted the sender's terms and conditions. If no attachment is added, then the body text of the email, up until the PIN, will be sealed within the Envilope.

Sending Options

Within the 'My Envilope' section of the web and desktop, there is a section called 'Envilope Virtual Assistant (EVA) Options' in which there is a default set of sending options that will be used when sending via EVA. This includes the stamp to use for the Envilope, and which terms and conditions the recipient has to accept.



Set the Default Options for Shipment Sent
using the Envelope Virtual Assistant

Allow Download	●
Allow Forwarding	○
Receive SMS Alerts	○
Anyone Can Open	○
Always show T&C's	●
Private Message	●
Allow Printing	○
Vaporize Entire Shipment	○

1.3 Changing Options within the Email

These default sending options can be overridden if the phrase 'EVA OPTIONS' is included just before the PIN in the body of the email, and the three-letter code to denote what option or options apply to this Envilope.

Users have the ability to set a broad series of options. The following are the three-letter codes used to initiate each one:

BRD

Blockchain Recorded Delivery = BRD

This option means that everything that happens and all actions relating to this Virtual Envilope will be Envilope BlockStamped.

DWN

Allow Download = DWN

This option enables the recipient to download, print, edit, and copy the file that the sender has uploaded in its original format after accepting the sender’s terms and conditions. This original file is not tracked.

SMS

Receive SMS Alerts = SMS

This option means that the sender will receive a text each time the Envilope is opened. The sender must have a valid mobile/cell number entered in the personal details section. Each text will use some LOCK.

FWD

Allow Forwarding = FWD

When the recipient opens the Envilope, they will be able to enter an email address and forward the shipment via Envilope to another recipient. The sender will be notified of any activity relating to this new recipient and all openings, etc., recorded in the logged-on area.

ACO

Anyone Can Open = ACO

This option will enable the Envilope, when received via email, to be opened by any email address (rather than just the email addresses of the original recipient(s)). This is useful for capturing email addresses.

TCS

Always Show Terms and Conditions = TCS

The recipient will always have to accept the sender’s terms and conditions before opening the Envilope.

PME

Private Message = PME

This option makes the sender’s cover message private until the recipient accepts the sender’s terms and conditions and opens the Envilope.

PRI

Allow Printing = PRI

This option will allow the recipient to click a button and access a pop-up, print-friendly version of sent documents when received via email, web, or via desktop.

VAP

Vaporize Entire Communication = VAP

By adding this option, the sender reserves the right to vaporize the entire contents of an Envilope at any time, including any chat within a shipment.

1.4 Terms and Conditions

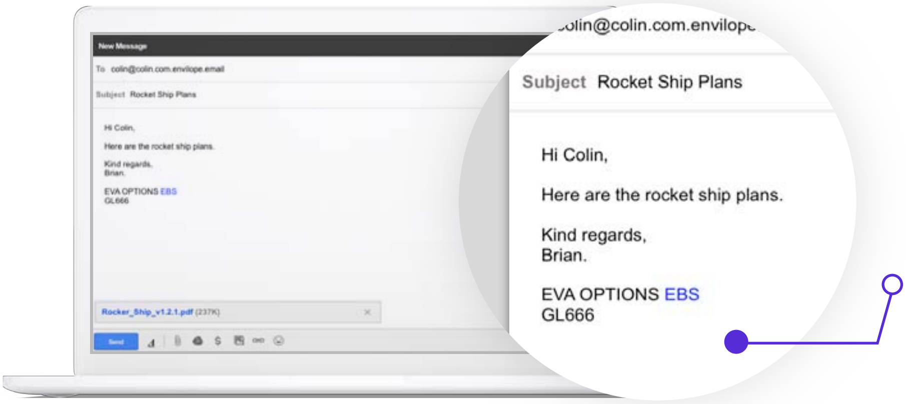
Virtual Envilopes give the sender the ability to attach a set of “terms and conditions” (usually a Word or PDF document) that the recipient must accept before the Envilope can be opened.

In the options section, the sender can also include the name of one of the terms and conditions documents, already uploaded to Envilope, to be used for this Virtual Envilope within the EVA OPTIONS line. Simply put double quotes around the names of the document and these will be used for the shipment (e.g. EVA OPTIONS “Standard Rocket Sales Terms”).

Simple Example

For instance, the sender could choose to override any default options and make sure everything is **BlockStamped** for the Envilope.

An example of an email that would allow this would be...



To colin@colin.com.envilope.email

Subject Rocket Ship Plans

Hi Colin,

Here are the rocket ship plans.

Kind regards,
Brian.

EVA OPTIONS EBS
GL666

Rocker_Ship_v1.2.1.pdf (237K)

olin@colin.com.envilope

Subject Rocket Ship Plans

Hi Colin,

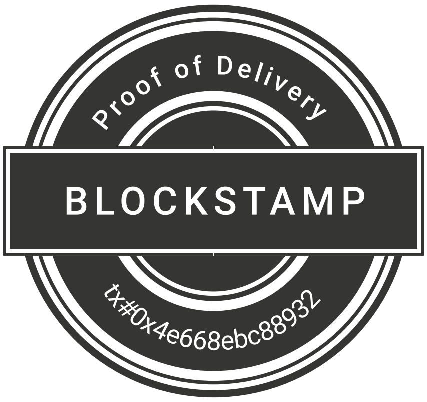
Here are the rocket ship plans.

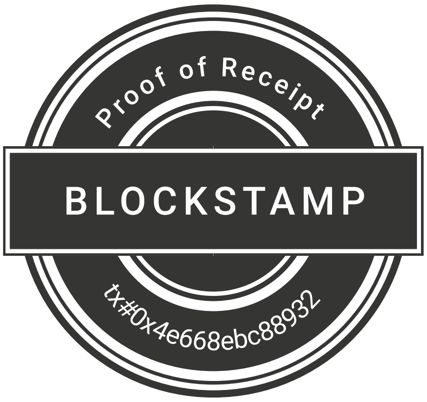
Kind regards,
Brian.

EVA OPTIONS EBS
GL666

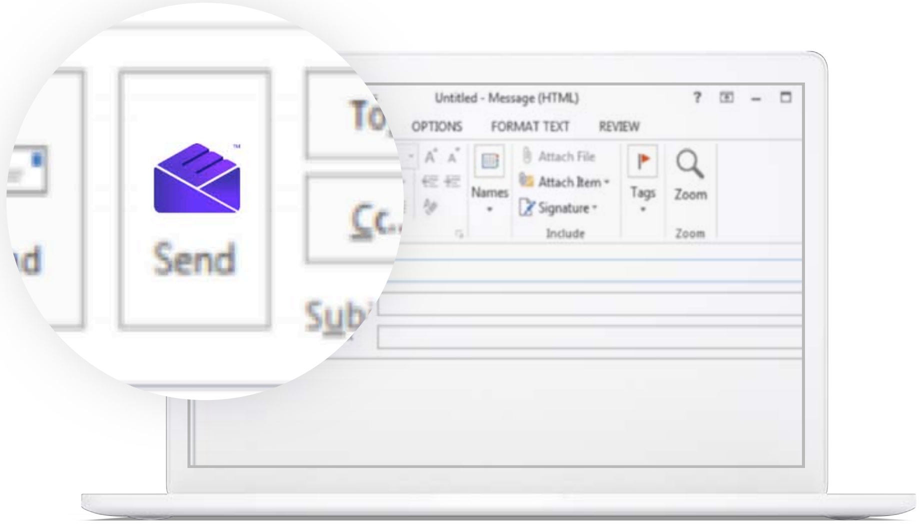
Where GL666 is Jeremy’s PIN number

This means that an **Envilope Proof of Delivery BlockStamp** and an **Envilope Proof of Receipt BlockStamp** would be generated and recorded onto the Ethereum blockchain for this particular Virtual Envilope.



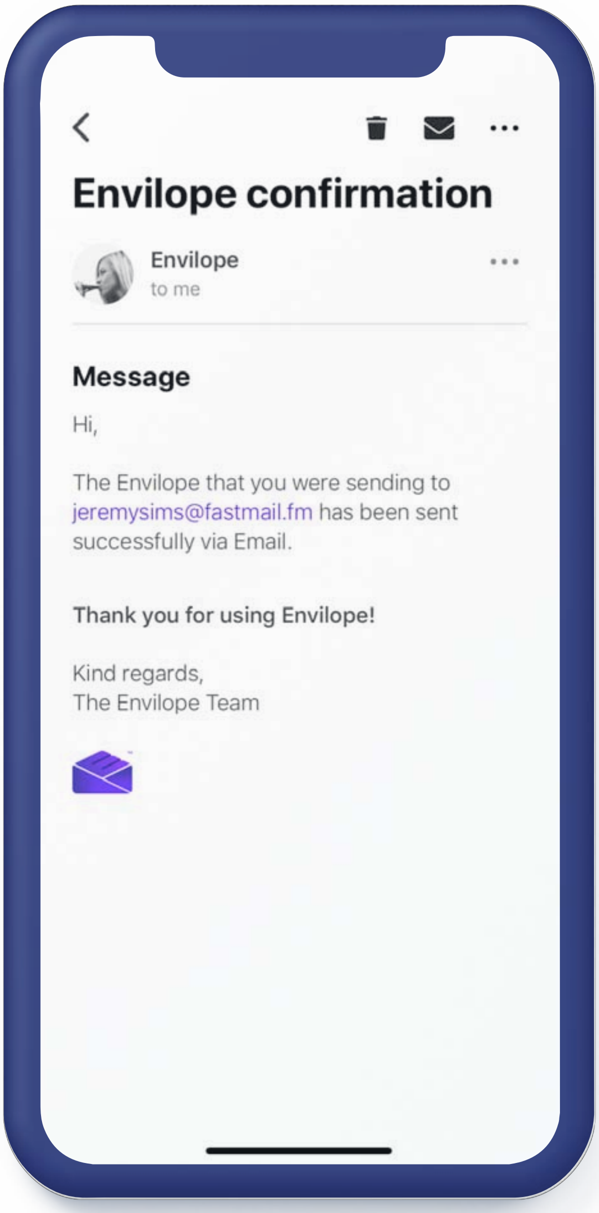


For Microsoft Outlook users there is a plugin that can be installed to make the process even easier.



1.5 How the Emails Are Processed

This process is facilitated by setting mail rules on the Envilope.email domain that forwards any email to an API endpoint on the Envilope.com server where the emails are processed by stripping out the email address(es) from the “To” field and then checking for a valid PIN. Once all the information is processed, and the sender authenticated, a Virtual Envelope is created and sent to the recipient(s). The sender is notified by the Virtual Assistant as to the status of their Envilope.



Envilope confirmation

Envilope
to me

Message

Hi,

The Envilope that you were sending to jeremysims@fastmail.fm has been sent successfully via Email.

Thank you for using Envilope!

Kind regards,
The Envilope Team

1.6 What information does the Envilope BlockStamp record?

The following information is generated when sending, receiving, and updating a Virtual Envilope:

- **A.** Time and date of when your email (or new Envilope requested to be created on the web, desktop or app versions) is processed by the API
- **B.** Time and date of when your Envilope is successfully created in the Envilope Storage System
- **C.** Any message sent
- **D.** Any documents sent including filename, file type, file size, and hash value
- **E.** Unique identifiers of the sender and recipients
- **F.** Time and date of when your Envilope is sent to the recipient’s email server
- **G.** The status returned by the recipient’s email server (Queued, Delivered, or Undeliverable)
- **H.** Time, date, and location of accepting your terms and conditions
- **I.** Time, date, and location of opening the Envilope
- **J.** Time, date, and location of viewing distinct pages of the content
- **K.** Details of any chat exchanged in the Envilope including time, date and location and hash value of the chat content
- **L.** Time, date, and details of any alteration made by the sender to the original parameters associated with the Envilope

These bits of information are recorded by three distinct types of BlockStamp:

1. Envilope Proof of Delivery BlockStamp

Items “A” through “G” represent the creation and sending of a Virtual Envilope.

2. Envilope Proof of Receipt BlockStamp

Items “H” “I” “J” and “K” represent receiver interaction with the Virtual Envilope.

3. Envilope Status BlockStamp

Item “L” represents an update to the original parameters set by the sender relating to the Virtual Envilope.

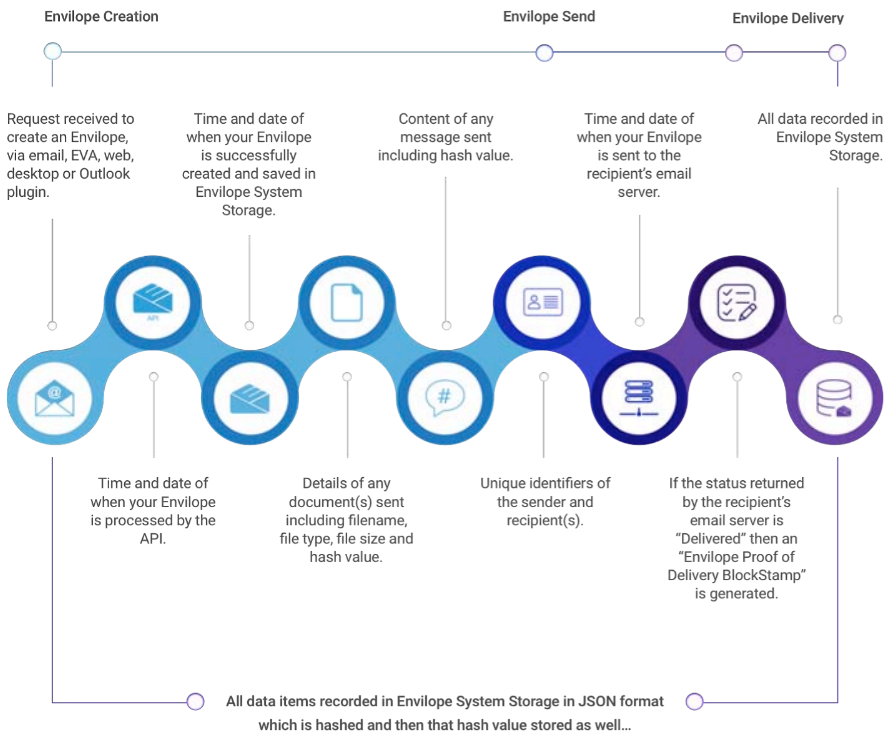
1.7 What information does the Envilope BlockStamp record?

When a Virtual Envilope is created and sent, a database record is created in the Envilope Storage System. All the data related to the sender is stored in JSON* format and a hash value of this data is stored in the database. An Envilope Proof of Delivery BlockStamp is created when the Virtual Envilope is sent, and it stores the hash value of the JSON of the send record's current data. The authenticity of the database record details can then be verified by the hash value stored in the Envilope Proof of Delivery BlockStamp.

*JSON : JavaScript Object Notation is an open-standard file format that uses human- readable text to transmit data.

1.8 Envilope Proof of Delivery BlockStamp

Data generated and captured during creation and send of a Virtual Envilope



Envilope Creation

Envilope Send

Envilope Delivery

Request received to create an Envilope, via email, EVA, web, desktop or Outlook plugin.

Time and date of when your Envilope is processed by the API.

Time and date of when your Envilope is successfully created and saved in Envilope System Storage.

Details of any document(s) sent including filename, file type, file size and hash value.

Content of any message sent including hash value.

Unique identifiers of the sender and recipient(s).

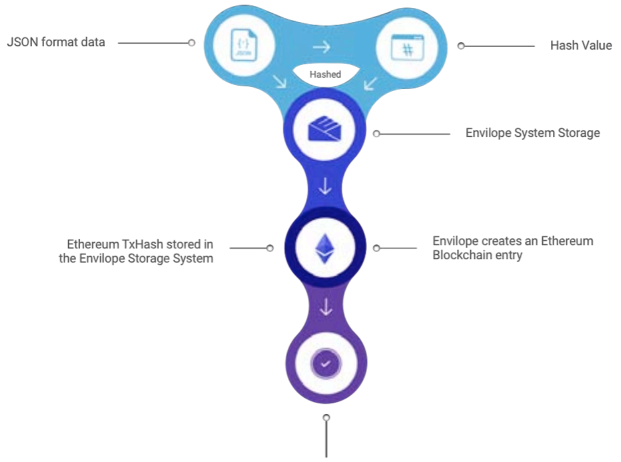
Time and date of when your Envilope is sent to the recipient's email server.

If the status returned by the recipient's email server is "Delivered" then an "Envilope Proof of Delivery BlockStamp" is generated.

All data recorded in Envilope System Storage.

All data items recorded in Envilope System Storage in JSON format which is hashed and then that hash value stored as well...

How this data generates an "Envilope Proof of Delivery BlockStamp"



JSON format data
JSON
Hashed
Hash Value
Envilope System Storage
Ethereum TxHash stored in the Envilope Storage System
Envilope creates an Ethereum Blockchain entry

"Envilope Proof of Delivery BlockStamp" is created on the Ethereum Blockchain which stores the hash value of the JSON relating to the send event.

Similarly, when a recipient opens a Virtual Envilope, all the data relating to an opening is stored in a database record in the Envilope Storage System, and a hash value of that record is created. An Envilope Proof of Delivery BlockStamp is then created, which stores the hash value of the database record on the blockchain.

The sender can decide to change some parameters relating to a Virtual Envilope after it has been sent. For example, the sender might decide to allow the recipient to be able to download a copy of a file sent, rather than just view it within the Envilope. Any changes such as this to the Envilope parameters can be recorded in a similar way as outlined above and an Envilope Status BlockStamp will be created.

2. Decentralized System Technical Details

2.1 Overview

In the same way as the Centralized system, the Decentralized System also creates Proof of Delivery, Proof of Receipt, and Envilope Status BlockStamps on the Ethereum blockchain.

Envilope BlockStamp Records are written to and recorded on the Ethereum blockchain, giving immutable proof that a Virtual Envilope was delivered, received, and opened.

In its next phase of development, facilitated by the **LOCK** Token Sale, Envilope intends to go beyond its existing products and services to develop a fully open-source, decentralized Envilope ecosystem.

The Decentralized Envilope Ecosystem will be a Peer to Peer (P2P) network that allows Envilope users to create Envilopes and send them to other Envilope users directly on the Envilope P2P (**eP2P**) network, bypassing the central server 'Post Office' model.

2.2 Creating an Envilope

The Sender clicks 'NEW' in the app to create an Envilope.

STAMPS

Users can upload their own stamps.

SEND TO...

The recipient(s) are chosen from people on the **eP2P** network.

SUBJECT and MESSAGE ADD FILE

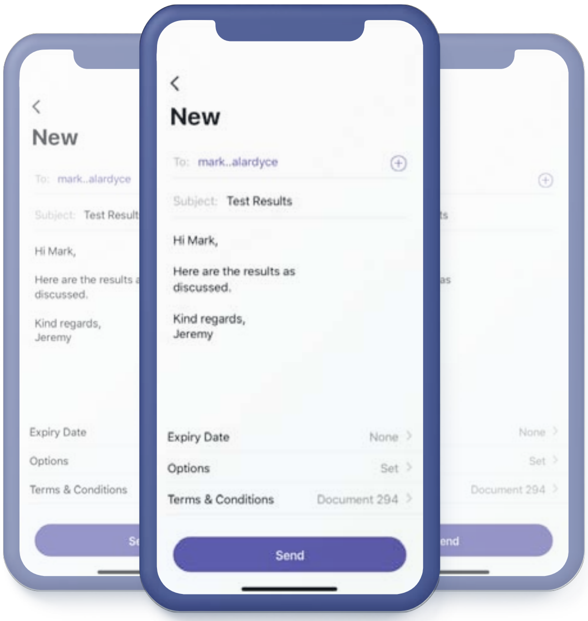
Choose document to attach.

OPTIONS

Configure any options related to the Envilope, e.g. allow the recipient to forward to others, allow the user to access the native document, etc. There is an option to create an email or SMS documenting that the recipient has been sent an Envilope.

TERMS & CONDITIONS

Choose and attach any terms and conditions that need to be accepted by the recipient before they can open your Virtual Envilope.



New

To: mark..alardyce

Subject: Test Results

Hi Mark,

Here are the results as discussed.

Kind regards,
Jeremy

Expiry Date: None

Options: Set

Terms & Conditions: Document 294

2.3 Sending an Envilope

There are three main processes involved in sending a Virtual Envilope:

File Transfer

The data that describes the Virtual Envilope and the file(s) contained in the Virtual Envilope are securely transferred to the Recipient Peer via the eP2P network.

Envilope Status

An "Envilope Status" local database entry is created, which stores the current Envilope and options chosen by the sender (e.g. is the recipient allowed to forward the Virtual Envilope, will the sender be alerted by SMS on opening of the Virtual Envilope, etc). An "Envilope Status" entry is also recorded onto the Ethereum Blockchain, which contains all the specific Virtual Envilope Options chosen by the sender-related to this Virtual Envilope, in an encoded format.

Proof of Send

A local database entry is created containing all information relating to the Virtual Envilope. Users will store personal data relating to transactions, e.g. Virtual Envilopes sent and received on their personal device using the Envilope app and optionally backed up to a personal account on a cloud-based or distributed storage platform or to Envilope.com. This approach also has the benefit of decentralizing data storage. A JSON object is created from this information and a hash value of the JSON object is stored. An Envilope Proof of Send BlockStamp is then recorded onto the Ethereum Blockchain, which includes the hashed value relating to the Envilope entry in the local database.

2.4 Receiving an Envilope

There are three main processes when an Envilope is received:

Proof of Delivery

When the Recipient’s local database is updated and the transferred file is verified, a Proof of Delivery BlockStamp is created on the Ethereum Blockchain. An inter-app message is sent to the sender, notifying them that the Virtual Envilope has been delivered. The cost in LOCK to send the Virtual Envilope will then be deducted from the sender’s LOCK account.

Proof of Receipt

The recipient must then accept any terms and conditions attached to the Virtual Envilope before they can view the contents. A Proof of Receipt BlockStamp is created at this point. An entry into the local database containing all of the information relating to this Virtual Envilope is also created and an inter-app message sent to the sender, notifying them that the Virtual Envilope has been opened.

Control of a Virtual Envilope

When the recipient next tries to open an already received Virtual Envilope, the latest Envilope Status Blockchain entry is queried in order to check that the recipient still has permission to open this Virtual Envilope. The sender can control access to the Virtual Envilope, or any of the parameters relating to the Virtual Envilope, and amend these at any time by creating a new Envilope Status record on the Ethereum Blockchain.