a decentralized Asset-Based Token platform

ABTRC100 - FACTORING ABT

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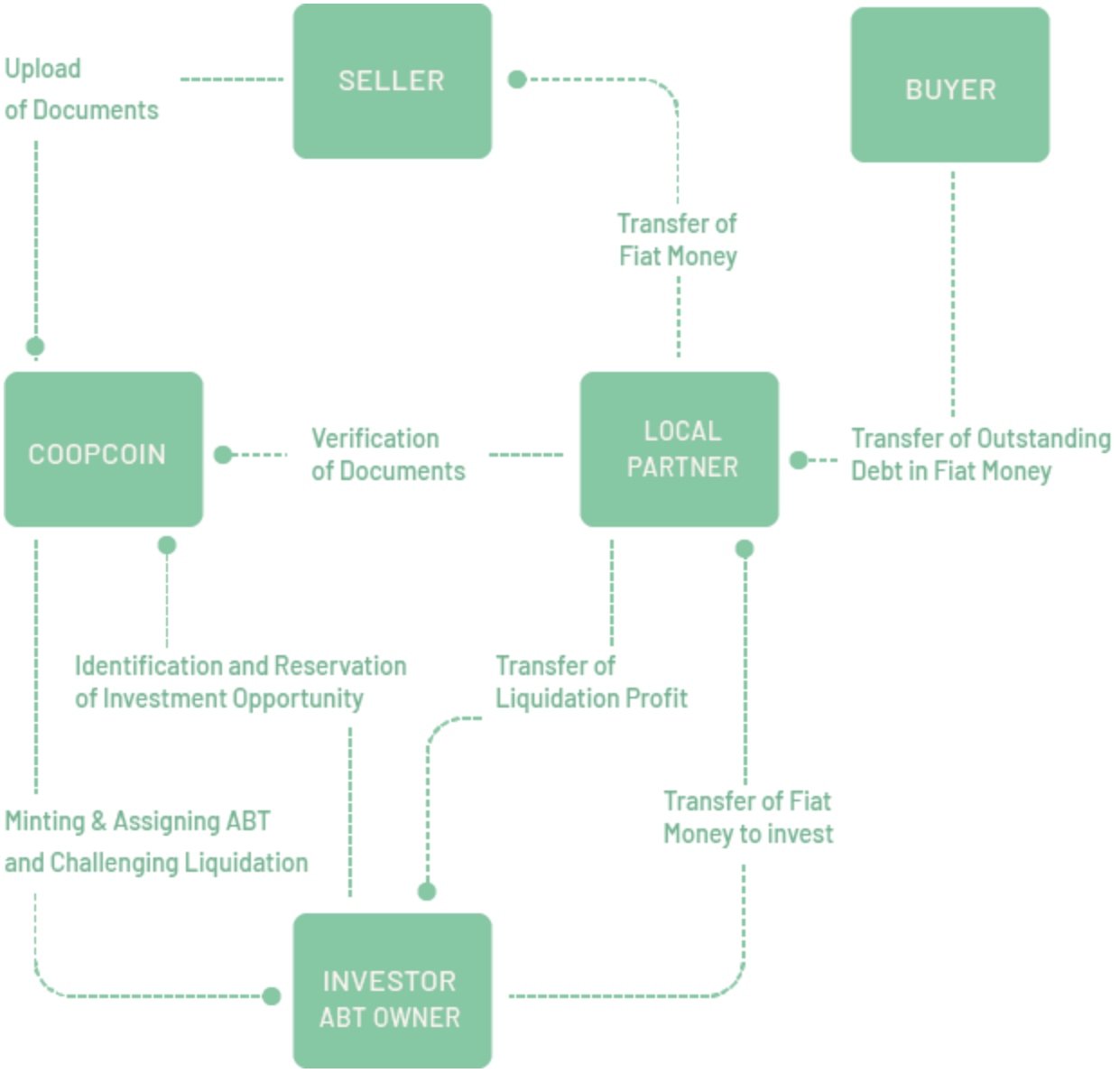
Simple summary

Asset-Based-Token (ABT) specification for the workflow of factoring contracts represented operated by CoopCoin platform.

Abstract

This ABTRC describes the factoring ABT to be created in the CoopCoin Platform. It is based on traditional factoring operations performed by a partner company providing the service for all necessary non-blockchain processes to use CoopCoin. Local CoopCoin partners will for example verify Accounts Receivable (AR) provided by sellers based on applicable local regulations. The partner company will setup the conditions for the debtor to pay its obligation to a trust account, of which the trustee will distribute the payments from the factor (initial investor) to the seller and subsequent payment of the obligation from the debtor to be distributed to the seller and the final owner" (in most cases the original factor) of the ABT who liquidates ("burns") it. The actual flow in the real-world contains more steps, but the document is not meant to explain them in detail. CoopCoin's team has experience with factoring processes in various countries and is well aware of its complexities but also of its potential.



Once an AR is approved by the local company, it will be listed in the CoopCoin Factoring platform and made available to investors under the conditions set by the seller and the fee set by the partner company. Investors can now reserve the AR. Once an investor buys the contract, the ABT is minted to the investor's Ethereum account.

The ABT is a non fungible token that the owner can sell to other investors on OTC exchanges, or use in decentralized markets or platforms.

The original owner (factor) of the ABT will be able to use the ABTX (CoopCoins Asset-Based-Token-Exchange) to sell forward the ABT before it matures and can be collected, as he might have identified an opportunity for which he needs funds to invest into. Another investor meanwhile might be interested in buying up the ABT from the

original owner to receive a profit on excess funds that cannot be deployed elsewhere. As such an investor can profit owning an ABT even for a short time, use it as a store of value or other uses inside the Ethereum blockchain, for example as collateral in other contracts.

The ABT contains a special variable called “paid” that will signal to TRUE when the debtor fulfils its obligation, making the ABT liquidable. Whoever holds the ABT may burn it (Burner) and claim the funds on the CoopCoin Factoring platform by successfully entering the correct address in the burning challenge. The partner company will arrange for transfer of funds to the burner and end the cycle of the ABT.

Motivation

Partner companies of CoopCoin have to be experts in the factoring business and operations. They will facilitate liquidity for the ABT and will assist in the setup of local companies and/or partnerships to ensure that the ABTs are legally bound factoring contracts. CoopCoin will itself invest into regulatory research to facilitate partners to be able to comply with local regulations.

The factoring industry as an established business worldwide with defined practices and regulations is a fertile ground to create real-world assets on the Ethereum blockchain. CoopCoin believes in the big potential of this type of asset representation. It shall open the door to other instruments and vehicles that may enrich the crypto economy on the Ethereum blockchain. It goes beyond plain-vanilla market solutions such as basic assets as a car or a house into more complex financial assets and instruments.

CoopCoin aspires to represent real-world assets and to not simply be a merely theoretical system. We see other platforms working to bring factoring onto the blockchain and offering investors the option of buying accounts receivable with cryptocurrency. In our view this is very complicated from a compliance perspective at least at this stage. We set up an operation that provides actors that are new to blockchain and allows them access to this technology. We believe our approach accomplishes that objective and mitigates some of the complexities to newcomers using blockchain platforms.

As CoopCoin evolves it will bring its participants closer to the blockchain and the different related markets, where they may further be able to benefit from potentially increased liquidity and competition of investors through decentralized markets.

Implementation

Token Id

Keccak256 hash of a string concatenated with a semicolon (';') between the following elements:
Country code in accordance with the ISO_3166-2.
Seller tax id.
Invoice Number

Example:
keccak256("USA;123456789-0;5742") for:
Country code: USA (United States)
Seller Tax Id:123456789-0
Invoice Number: 5742

Token Data Structure:

Variable	Description	Type
Created	timestamp in which the token was created. Uses the date solidity function	uint256
InvoiceDate	timestamp of the invoice date	uint256
InvoiceId	Seller invoice number or reference	string
SellerTaxId	Tax id of the seller	string
InvoiceCountryCode	Country code in accordance with the ISO_3166-2	bytes2
IPFSHash	hash to find the invoice documents on IPFS	string
Currency	code according to ISO 4217 code list. (i.e. USD for Us Dollar)	bytes3
InvoiceValue	invoice value in the denominated Currency	uint256
DiscountRate	percentage of the annual discount rate	uint256

AdvanceRate	percentage of the invoice amount disbursed to the Seller	uint256
LengthInDays	Length in days for the debtor to pay the invoice since InvoiceDate	uint256
Paid	signals if the debtor already paid the invoice (default: false)	bool
PaidTimestamp	stores the timestamp in which the invoice were paid by the debtor (default: 0)	uint256
BurningFee	percentage of the invoice value that should be burned in CoopCoin as a fee for liquidating the token	uint256
Burned	Signals if the token is burned (default: false)	bool

Minting

A MultiSig wallet managed by a specified amount of CoopCoin team-members is in charge of minting ABTs.

First, the accounts receivable to be factored is entered into the system with all the parameters for the contract. All supporting documentation is also included in the package along with a copy of the accounts receivable. If necessary, a local company in the country where the accounts receivable is generated completes a credit study of the debtor. This information is listed on the platform for the benefit of all participants interested in the transaction.

Upon successful purchase by an investor, the ABT enters into the first market. In this step, the investor sends the amount corresponding to the advance rate to the partner company and receives confirmation that the funds have been received by the local company.

The partner company proposes a “mint” transaction to CoopCoin’s MultiSig wallet. This wallet is authorized to mint in the ABT100 smart contract. Following a satisfactory validation by a specified amount of other signers of CoopCoin, the transaction proposed by the local company is signed and CoopCoin mints the ABT to the investor’s address.

Transfer

All transfer processes of the Factoring ABT are as described in the ERC721.

Burning

Upon payment by the debtor to the partner company acting as a trustee, CoopCoin signals the ABT as ready to be liquidated. In order to claim the amount represented by the ABT (check 'Value of the Token' section for details) on CoopCoin, the ABT holder is required to first burn the ABT. Please note that after the ABT is burned, the ABT holder is referred to herein as the user.

Following the burning of the ABT, the user files an official claim with CoopCoin through the platform requesting the funds. CoopCoin will ask the user to validate the ownership using the same private key applied by the user previously to burn the ABT. Upon a successful 'proof of burning' ("liquidation challenge"), CoopCoin will liquidate the token issued to the user and the funds are transferred into an approved bank account of choice.

Two conditions have to be met for a token to be burned:

1. The 'Paid' variable of the token is True.
2. The liquidation challenge was passed satisfactory

Once these conditions have been met, the token will pass the normal burning flow of the Open Zeppelin ERC721Token contract.

Value of the Token

The Factoring ABT smart contract will have a function with a TokenID as an argument that returns the value of the contract to be liquidated by CoopCoin.

Taking the following variables from the data structure: AdvanceRate (ADR), DiscountRate (DR), Created (C), PaidTimestamp (PT). The following algorithm will be applied to get Value Of Token (VOT):

1. Get the length in days (LID) while the token was 'unpaid' by subtracting C from PT: $LID = PT - C$

2. Get the interest percentage (IP) for the Length in Days: $IP = LID \times DR \div 365$
3. And get VOT: $VOT = AR + (IP \times ADR)$

The 'Paid' variable

The Factoring ABT data structure defines a boolean 'Paid' variable initialized in 'False', this variable signals if the underlying contract being represented by the ABT has been paid by the debtor. This variable can only be set once and only to be changed to 'True'. At the same time the PaidTimestamp variable is set with the 'now' solidity function.

The function that performs this state change of the ABT is restricted to a MultiSig wallet which requires 1 signature by the partner company and one or multiple signatures by CoopCoin.

Once this variable is switched, the token is burnable and may be liquidated.

Issuer

As mentioned in the section "Minting", the issuer of the token is a MultiSig Wallet which will create a transaction that will be signed by the partner company making it legally binding to the ABT by applying applicable laws. CoopCoin delegates will confirm that all off-blockchain processes, such as the paperwork, money transfer, due diligence and other instruments necessary for liquidating the token are in place to complete a successful operation and liquidation of the ABT. CoopCoin will oblige partner companies to terms and agreements to be able to partner with CoopCoin, ensuring that their services provided to the seller and investor comply with applicable law.

Rationale

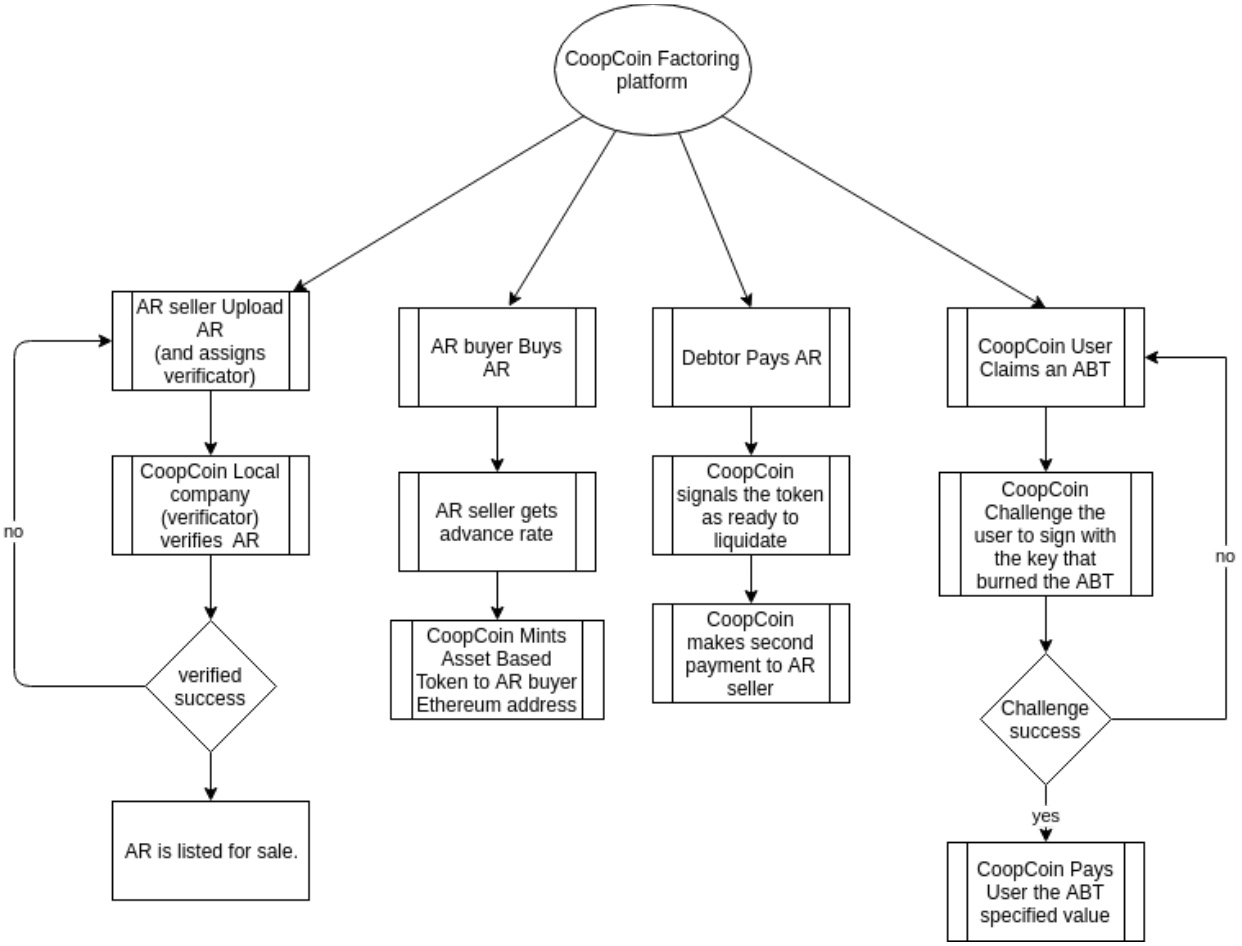
How Factoring on CoopCoin Works

Co-operatives and SMEs use various sources to finance their operations and optimise their working capital. Among the most common sources to manage working capital and short-term liquidity is the sale of accounts receivable. Investors assess the value of those sources and purchase the right to the underlying debtor's payment obligation from the seller. Sellers can then use these proceeds as they see best fit in their organization, i.e. manage their working capital, fund capital expenditures or service financial obligations.

Currently a co-operative or company approaches one or multiple local factoring companies, which try to help them factor their ARs or factor them themselves. The alternative is using existing online factoring platforms that provide market access to multiple potential investors at once. Both options come at considerable, often prohibitively, high costs to the seller.

In general, factoring is the sale and purchase of an invoice/accounts receivable between two parties, where the purchaser pays a certain percentage (e.g. 70%) of the nominal value to the seller at the time of purchase. When the invoice is paid in full by the debtor, each party receives an amount stated in the contract. For example, the purchaser (investor) receives their principal (70%) plus interest, the intermediary is paid a fee and the seller keeps the remaining amount. There are various manual and financial processes behind this transaction that are complex and require substantial knowledge and experience. These complexities are part of CoopCoins business know-how and value. It is important to point out to the reader that the process of factoring can involve for example multiple entities, trust accounts and other difficulties, all of which cannot be solved by merely ‘creating a non fungible token’, as seen in other projects.

CoopCoin’s ABT is a non-fungible token with the ERC721 compatible contract, minted in a way that will make it legally binding for its owners. The ABT makes the factoring contract a standard asset, easy to manage and tradeable by established markets and wallets. The ABT contains an IPFS hash pointing to the digitized AR and relevant documents.


CoopCoin Factoring platform
AR seller Upload AR (and assigns verificator)
CoopCoin Local company (verificator) verifies AR
verified success
no
AR is listed for sale.
AR buyer Buys AR
AR seller gets advance rate
CoopCoin Mints Asset Based Token to AR buyer Ethereum address
Debtor Pays AR
CoopCoin signals the token as ready to liquidate
CoopCoin makes second payment to AR seller
CoopCoin User Claims an ABT
CoopCoin Challenge the user to sign with the key that burned the ABT
Challenge success
no
yes
CoopCoin Pays User the ABT specified value