



EaglePay

whitepaper

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Whitepaper EagleCoin Draft

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Abstract

EagleCoin is the first step of the EaglePay project, which is aimed at developing a payment gateway system using blockchain technology. EagleCoin is an ERC20 Ethereum token that functions as a digital asset. EagleCoin holders will receive a 1:1 EaglePayToken (EPT) upon the EaglePay ICO (Initial Coin Offering).

EagleCoin investors will receive three benefits. First, they are eligible to receive a staking reward. Second, as EPT holders, they will receive free EPT. Finally, investors will receive a profit if the value of EagleCoin increases. We believe, with our roadmap and limited number of tokens in supply, the value of EagleCoin will increase significantly. However, it is important to note that we are not able to define the target price at this time because it depends on the market mechanism.

Introduction

During this decade, the use of blockchain technology has continued to spread around the world. More than one thousand cryptocurrencies and tokens have been released to date. Several applications of blockchain technology have been proposed and some of these have already been implemented. As a result, cryptocurrencies such as Bitcoin and Ethereum are gaining in mainstream acceptance. Security, low fees, and anonymity are among the reasons why people are drawn to this technology. The expectation that cryptocurrencies will increase in value has attracted increased investment interest. Recently, between 2.9 million and 5.8 million unique users created cryptocurrency wallets, with the result that the market capitalization of all cryptocurrency has reached USD 25 billion in March 2017 (Hileman and Rauchs, 2017).

Blockchain technology, which relies upon decentralized control, as opposed to a centralized electronic money or centralized banking system, has a big potential to be implemented as a payment system. In a decentralized payment system, the transaction can be validated and secured without the presence of trusted intermediary parties. Blockchain technology has proven to be a safe technology for transaction systems. Without the presence of a trusted party, decentralized systems tend to be cheaper, faster and secure. We believe that in the future, the application of blockchain technology will gain acceptance in daily payment systems.

While the application of cryptocurrency as a payment medium has gained acceptance in many jurisdictions, it has yet to receive universal acceptance. The two main challenges currently faced by cryptocurrency payment

companies are first, the difficulty of obtaining banking/ money transfer operator relationships; and second, the high cost of regulatory compliance (Hileman and Rauchs, 2017). A third disadvantage inherent in most cryptocurrencies is the user-unfriendly wallet, which is designed to deter unauthorized entry. To gain access, users must type or copy a long randomized- private key. To overcome these issues, we are developing EaglePay, a payment gateway system using blockchain technology that reduces the cost of transfer to banks, complies with the regulatory authorities of most jurisdictions, and presents a user-friendly interface.

We plan to develop the EaglePay system through several discreet steps:

1. Creating EagleCoin, an Ethereum token, that function as a digital asset.
2. Conducting EaglePay ICO.
3. Releasing EaglePay.

While this whitepaper focuses on EagleCoin, the technical details regarding EPT and EaglePay will be explained in a separate whitepaper. However, the relationship between EagleCoin, EPT and EaglePay will be explained here: EagleCoin is an ERC20 Ethereum token that functions as a digital asset. EagleCoin uses the PoSTokenStandard mechanism developed by PosToken and runs in the Ethereum blockchain. We choose using the Ethereum blockchain since ethereum is the most active blockchain gaining in popularity (Anderson et.al, 2016).

We choose the “Eagle” brand because we want the EaglePay system to be perceived as strong, dynamic, and high performance. The value of a digital asset is determined by its usefulness and trustworthiness and the development of EaglePay will increase EagleCoin usefulness. We believe that the investors of EagleCoin will receive benefit from their investment.

Roadmap

The final stage of our project is creating a payment gateway system using a blockchain technology that is user both user-friendly and meets regulatory requirements. However, to reach that stage, we need to first release EagleCoin. Table 1 shows the project’s roadmap, along with the approximate timeline:

Table 1. Roadmap

Project	Timeline
EagleCoin community building	August 2017
EagleCoin release in exchange	October 2017
EagleCoin Android wallet	January 2018
Tor network integration	February 2018
EaglePay ICO	August 2018
EaglePay release	2019

We will start our project by determining the business model and the technical details of each project. After the business model and most of the technical details are constructed, we will start building the community using social media.

The next step is developing EagleCoin and then releasing it in market exchanges. EagleCoin Android wallet will be released in January 2018 and then Tor network integration will be completed in February 2018. The EaglePay ICO will take place subsequent to this, once we finalize technical aspects of EaglePay, developing EaglePay prototype and get commitments from the related parties. After completing the EaglePay ICO, we will start preparing the EaglePay release. More information regarding both EPT and

EaglePay will be found in greater detail in the relevant sections of this document.

Eagle Coin is not an ICO project. We will develop EagleCoin to build a strong community; to create a digital value for transactions and for dividend payment; and to make a profitable investment asset.

EagleCoin Specification

Table 2. EagleCoin Specification

Name:	EagleCoin
Symbol:	EAGLE
Decimals:	18
Standard:	ERC20
Platform:	Ethereum
Maximum Coin Supply:	12 000 000 EAGLE
Initial Supply:	3 600 000 EAGLE
Minimum Coin Age:	3 Days
Maximum Coin Age:	90 Days
Expected annual staking reward for coin holder:	
	<ul style="list-style-type: none">• Year 1: 100%• Year 2: 50%• Year 3 until Maximum Coin Supply Reached: 10%

Distribution

When EagleCoin is released, 3,600,000 EAGLE (30% of maximum coin supply) will have been created initially. The amount of coin to be distributed at that time will be:

Developer: 1 500 000 EAGLE
Marketing and Others: 1 500 000 EAGLE
Bounties and Air Drop: 600 000 EAGLE

Staking Reward

EagleCoin holders are eligible to claim a staking reward if they have held EagleCoins for at least three days. The staking reward is proportional to the number of coins held in the wallet and the length of time the coins have been held. This value is referred to as coinAge, which is the number of coins multiplied by how long the coins have been held (age). Older and larger sets of coins will have a greater coinAge. The staking reward is proportional to the coinAge.

However, once the staking reward is taken, the investor must start over with zero coinAge and must wait for three more days before becoming eligible for the staking reward. The coinAge reaches a maximum amount after 90 days in order to prevent a single large amount of coinAge from dominating the blockchain. This also means that the coinAge will never increase above the 90-day limit. Note that:

- The coinAge will reset to zero when a coin holder transfers any amount of EAGLE to another wallet.
- Receiving coin will not reset the coinAge, nor will transferring any amount of Eagle by the coinholder into his or her own wallet.

The EagleCoin holder can trigger the staking reward in one of two ways:

- The EagleCoin holder can send a transaction to his or her own wallet (the receiver's address is the same as the sender's address) with any amount of EAGLE.

- The EagleCoin holder can execute the mint() function in EagleCoin smart contract using MyEtherWallet.com, Mist, or any other wallet software that can interact with contracts. Please visit our YouTube channel to watch the tutorial video.

We estimate the staking reward rate for the first year at approximately 100% annually. For example, a person who has 1000 EAGLE and keeps that coin for one year will get staking reward of 1000 EAGLE in the first year. In the second year, the reward will be approximately 50% and in the third year and after, the staking reward is around 10%.

The EagleCoin smart contract code can be found in this link:

<https://etherscan.io/address/0x994f0dffdbae0bbf09b652d6f11a493fd33f42b9#code>. Below is contact code for mint() function:

```
function mint() canPoSMint returns (bool) {
  if(balances[msg.sender] <= 0) return false;
  if(transferIns[msg.sender].length <= 0) return false;

  uint reward = getProofOfStakeReward(msg.sender);
  if(reward <= 0) return false;

  totalSupply = totalSupply.add(reward);
  balances[msg.sender] = balances[msg.sender].add(reward);
  delete transferIns[msg.sender];

  transferIns[msg.sender].push(transferInStruct(uint128(balances[msg.sender]),
    uint64(now)));

  Mint(msg.sender, reward);
  return true;
}
```

Current annual interest is calculated through the annualInterest() function:

```
function annualInterest() constant returns(uint interest) {
  uint _now = now;
  interest = maxMintProofOfStake;
  if((_now.sub(stakeStartTime)).div(1 years) == 0) {
    interest = (770 * maxMintProofOfStake).div(100);
  }
}
```

```

    } else if((_now.sub(stakeStartTime)).div(1 years) == 1){
        interest = (435 * maxMintProofOfStake).div(100);
    }
}

```

CoinAge is calculated through the `coinage()` function that returns to CoinAge of an account:

```

function getCoinAge(address _address, uint _now) internal returns (uint
_coinAge) {
    if(transferIns[_address].length <= 0) return 0;

    for (uint i = 0; i < transferIns[_address].length; i++){
        if( _now < uint(transferIns[_address][i].time).add(stakeMinAge) ) continue;

        uint nCoinSeconds = _now.sub(uint(transferIns[_address][i].time));
        if( nCoinSeconds > stakeMaxAge ) nCoinSeconds = stakeMaxAge;

        _coinAge = _coinAge.add(uint(transferIns[_address][i].amount) *
nCoinSeconds.div(1 days));
    }
}

```

The staking reward is calculated through the staking reward function:

```

function getProofOfStakeReward(address _address) internal returns (uint) {
    require( (now >= stakeStartTime) && (stakeStartTime > 0) );
    uint _now = now;
    uint _coinAge = getCoinAge(_address, _now);
    if(_coinAge <= 0) return 0;

    uint interest = maxMintProofOfStake;
    if((_now.sub(stakeStartTime)).div(1 years) == 0) {
        interest = (770 * maxMintProofOfStake).div(100);

    } else if((_now.sub(stakeStartTime)).div(1 years) == 1){
        interest = (435 * maxMintProofOfStake).div(100);
    }

    return (_coinAge * interest).div(365 * (10**decimals));
}

```

Android Wallet and Tor Network Integration

EagleCoin holders may want to access their wallet in many places where PCs or laptops are not available. To satisfy this user need, we will release the EagleCoin Android wallet that is integrated with the Tor network. The Tor network will make the transaction process difficult to be traced and provide with an anonymous transaction. The Android wallet will also make EagleCoin more accessible for all users. Figure 1 shows the transaction process. User transaction data is sent through Tor network to make it anonymous and difficult to trace before entering to the Ethereum mainnet.

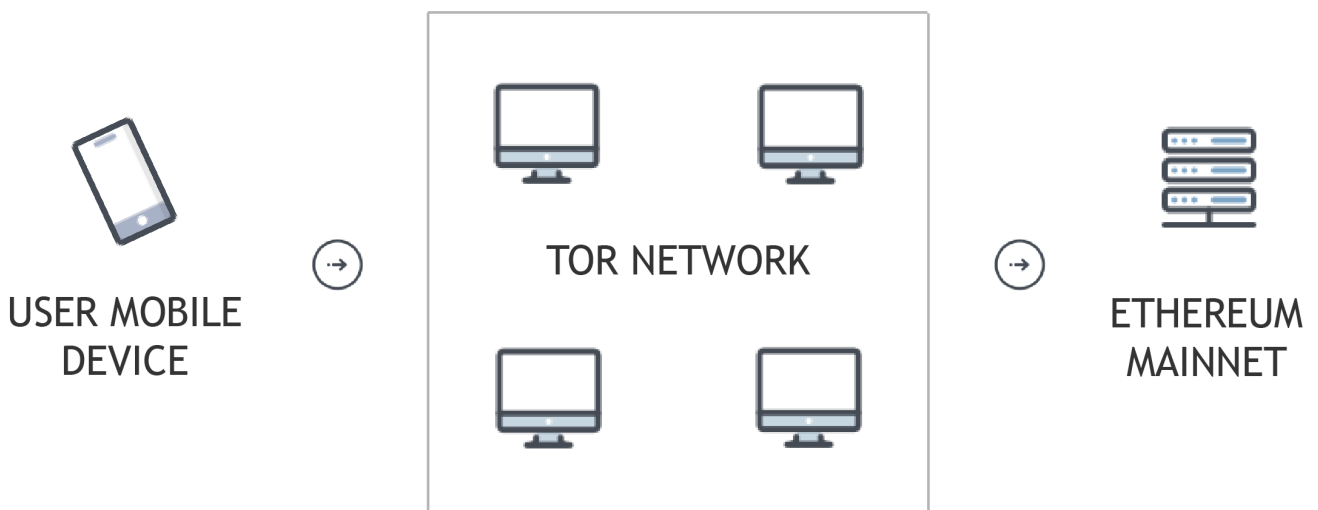


Figure 1. TOR network integration

EaglePayToken (EPT)

EPT is a 100% pre-mined token sale in the EaglePay ICO (The ICO). The ICO is intended to raise sufficient funds to develop the EaglePay system and enterprise and planned subsequent to the completion of the EaglePay application prototype. EPT holder will get transaction fee discount when they process a transaction in the EaglePay system based on their ownership of EPT. EPT holder can also get special vouchers when there is a promotional event.

In the ICO process, EagleCoin holders will get one EPT token for each EAGLE they hold on a one to one basis. A cum date will be specified to determine which wallet addresses have the right to get EPT tokens and how many tokens they will get. For example, if the cum date took place on 31 March 2017 at 23:59, all EagleCoin wallets in use at that time will receive one EPT token for each EAGLE held by the EagleCoin holder at the cum date. The total number of EPT is 60 million tokens, which means that if the number of circulating EagleCoin reaches its maximum, which is 12 million, the EagleCoin holders would cumulatively own 20% of EPT. More detail about EPT and the ICO will be described in the EPT whitepaper.

EaglePay

EaglePay is a payment gateway system based on blockchain technology. Third parties can access the gateway to meet their individual needs using EaglePay's Application Programming Interface (API). Instead of using a centralized ledger, EaglePay uses a distributed ledger to record each transaction. The use of distributed ledger can create trust among all parties, since all transaction is recorded in an open ledger and all parties can track the transaction they have done. Transferring money can also be done without any third party; a user can transfer any amount of money to another user directly, and therefore, transfer process can be conducted in a low cost.

EaglePay has its own blockchain that enables it to secure each transaction. EaglePay benefits from blockchain technology through security and low-fee transactions, but will complies with legal requirements and has a user-friendly interface. EaglePay is not based on cryptocurrencies as value references for the e-money token; instead, it uses fiat currencies as a reference. However, it is possible to buy the EaglePay e-money using cryptocurrency if it is legal in the appropriate jurisdiction.

The parties related to payment gateway system are principal, issuer, acquirer, merchant, and user (Figure 2 shows the relationship of the parties.):

- Principle: the party managing and securing the system, which is the core business of EaglePay.
- Issuer: the party issuing the e-money. This can be a bank or other organization.

- Acquirer: the party that works with the merchant to process the transaction. EaglePay will act as principal, issuer, and acquirer. Other issuers and acquirers may use the EaglePay blockchain to run their e-money business.
- Users accounts: These are divided into registered and unregistered accounts so to be compliant with local anti-money laundering laws.
 - Unregistered accounts are able to process merchant transactions but they cannot transfer money to other accounts and have lower transaction and deposit limits.
 - Registered account can transfer money to other accounts and have a larger transaction limit. To be eligible for a registered account, the user will need to provide identification or provide a credit card in order to be verified by the issuer.

EaglePay receives a portion from each transaction fee. Other parties such as issuers, acquirers, merchants, may also join the server to secure the network as forgers and receive a portion of transaction fee.

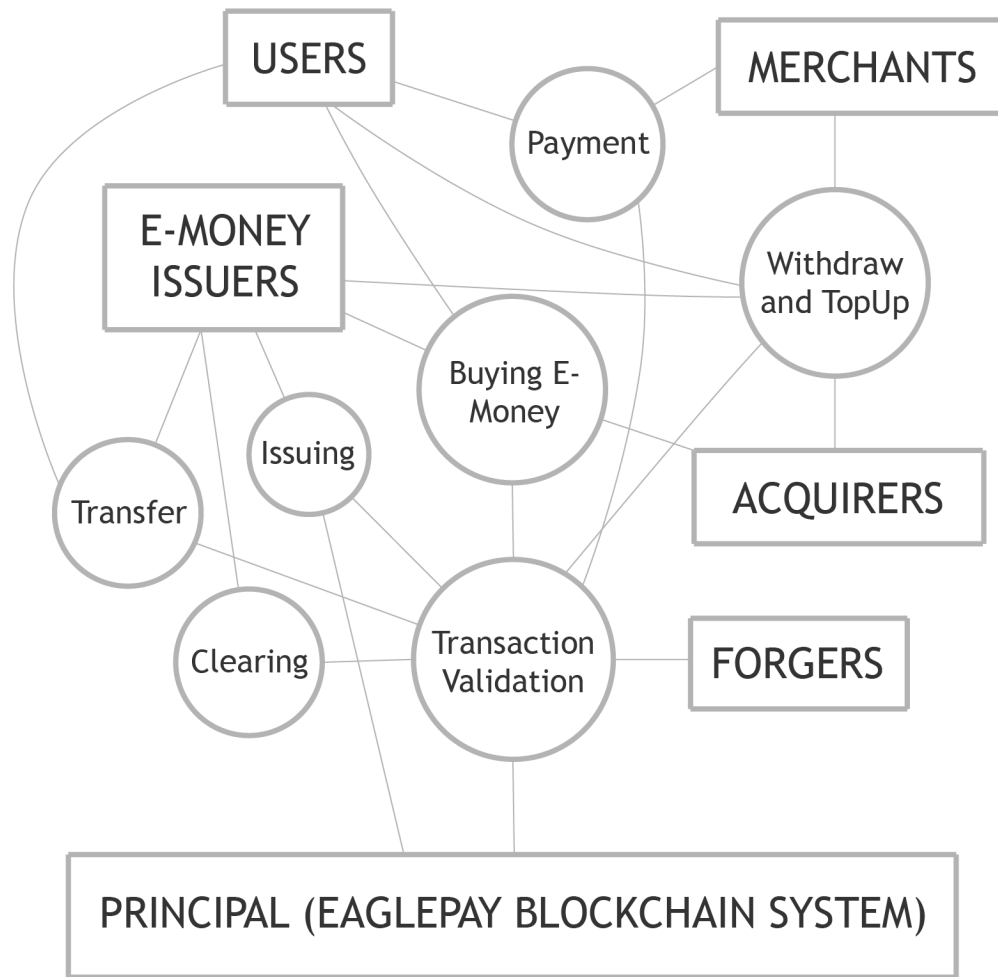


Figure 2. EaglePay flow diagram

The payment process is represented as a cycle while each entity is represented as a rectangle. All parts of this process, except the issuing of e-money and transaction validation, are actually a process of transferring a token from one wallet to another.

- The issuing of e-money is the process of creating e-money by an issuer. In the blockchain, issuing is the process of creating a smart contract token. Banks, financial institutions, retailer networks, or other parties can issue an e-money/create tokens. A user or acquirer can buy e-money from the issuer with fiat money; this process involves creating a wallet and transferring the tokens from issuer to user or acquirer.

- The withdraw process of transferring tokens from users or merchants to acquirers, where the acquirer gives the fiat money to the user or merchant. The top up (or deposit) process is the transferring of tokens from the acquirer's wallet to another user's wallet or a merchant's wallet, where the user gives fiat money to acquirer.
- The payment process is the transferring of tokens from the user's wallet to the merchant's wallet where simultaneously, the merchant transfers the goods or services that have been paid for by the user.
- The process of transferring e-money is the process of transferring tokens from a user's wallet to another user's wallet. This can be done with other tokens or e-money.
- The clearing process involves calculating how much an issuer should pay in fiat money to other issuers. Clearing is required as a result of transferring from one e-money to other e-money that has been issued by another issuer. Note that a unit of e-money represents a unit of fiat money; therefore, transfer to different a e-money can be done easily and without a significant additional fee. This represents an advantage of using EaglePay, compared to other centralized payment gateways.
- Transaction validation is the process of adding a transaction to the blockchain. To secure the blockchain, any party, can join to the node server, as a forger. Forgers will receive a portion of transaction fee. The process is outlined in Table 3:

Table 3. EaglePay process

No	Process	Financial Process	Blockchain Process
1	Issuing	Issuer issues an e-money	Issuer creates a token
2	Buying e-money	User and merchant buy e-money from issuer or acquirer with an initial money value	User and merchant create a wallet and then issuer or acquirer transfer the token to its wallet
3	Top Up	User buys and deposits a sum of money to the user's e-money wallet from acquirer	Acquirer send a sum of token to user's wallet
4	Withdraw	User or merchant exchange their e-money deposit with the same value of fiat money	User or merchant sent the token to acquirer
5	Payment	User buy something from merchant and pay using e-money	User send token to merchant's wallet
6	Transfer	User send money to another user	User send token to another wallet
7	Clearing	Calculating how much money an issuer should pay to another issuer as a result of transferring process across issuer	Calculating how much issuer's token own by another issuer
8	Transaction validation	Validation transaction between parties	Validating private key and amount of token

			owned by sender, and add the transaction to the blockchain
--	--	--	--

The benefits of using the EaglePay blockchain include:

- Issuers do not need to create and manage their payment system. The EaglePay payment system is both robust and secure;
- Faster transaction, even with other issuers;
- Secure for online transactions. Users do not need to give their personal data to merchants;
- Low fee for all transactions both under the same issuers or different issuers.
- Autonomous clearing process; and,
- The opportunity to become a forger on the server and receive a portion of the transaction fee. Issuers, Acquirers, Merchants, and other parties may join as forgers to secure the network and receive a portion of the transaction fee.

Our vision is to make EaglePay a micro payment gateway system that is accessible to a wide range of users, is easy to use, has a low fee, and complies with the regulatory regimes all jurisdictions. EaglePay also has the ability to create many business opportunities for both enterprises and individuals. These future developments may include:

- Virtual credit card
- Peer to peer lending

- Supply chain finance

Conclusion

Investors of EagleCoin will get at least three benefits. Firstly, they can get staking reward by holding EagleCoin for at least three days. Secondly, they will get EPT tokens on a one to one basis for each EagleCoin they hold when the ICO is held. Finally, they will receive a profit when the value of EagleCoin increases. With our specific roadmap and the limited number of tokens in supply, we believe that the value of EagleCoin will increase significantly.

References

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