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KRATSCOIN KTC

SERIAL CODED DIGITAL ASSETS

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KRATSCOIN [KTC] TECHNICAL WHITEPAPER

1.0 Abstract

Bitcoin has proven that a peer-to-peer electronic cash system can indeed work and fulfil payments processing without requiring trust or a central mint. However, for an entire *electronic economy* to be based on a fully decentralized, peer-to-peer solution, it must be able to do the following: process transactions securely, quickly and efficiently, at the rate of thousands per hour or more; provide incentives for people to participate in securing the network; scale globally with a minimal resource footprint; offer a range of basic transaction types that launch cryptocurrencies past the core feature of a payment system alone; provide an agile architecture that facilitates the addition of new core features, and allows for the creation and deployment of advanced applications; and be able to run on a broad range of devices, including mobile ones. Kratscoin satisfies all these requirements.

2.0 Introduction and Overview

Bitcoin Core consists of codes to optimize a decentralized network, measuring the prevention of Denial of Service (DoS), including stabilizing transaction data synchronization. Bitcoin Core is also licensed by MIT, meaning that we can all use the code inside for free.

There are a number of other development of the blockchain, which originates from Bitcoin Core, both very open or "breath and soul" with the Satoshi Nakamoto method, namely pseudonym.

It is Kratscoin [KTC] playing in that arena by patching the lack of Bitcoin [BTC] which does not have a "serial number" for each Bitcoin [BTC] unit. Bitcoin [BTC] lacking serial numbers unlike paper money, each Bitcoin [BTC] unit is "not unique" in the viewpoint of the fiat financial system.

In contrast to the peer-to-peer electronic money system which has a 12-digit serial number for each unit, it can be easily tracked by the authorities, and Kratscoin [KTC] is said to play in that arena and is called an advantage, because it is easier to assist, for example, the government to track the flow of transactions.

There are many similarities between Kratscoin [KTC] and Bitcoin [BTC], starting the mining process with standard ASIC miner [ASIC Miner S9 or T9], the maximum supply of only 21 million units, 1 block appears every 10 minutes and 7,200.0 [KTC] per 24 hours, including halving at every 210,000 blocks.

Based on data from Kratscoin [KTC] Explorer, as of 3 November 2019, the KTC blockchain block has reached # 46,684 with miner reward of 50.0 Kratscoin [KTC] per 10 minutes. Block Genesis (# 0) appeared on 18 December 2018, thus halving reward has not occurred.

Besides having serial numbers, another difference between Kratscoin [KTC] and Bitcoin [BTC] is the smallest number of units. If Bitcoin [BTC] has 0.00000001, then Kratscoin [KTC] has only 0.00001. This simplification is intended to facilitate the calculation of exchange rates (exchange rates) in Foreign Exchange Trading.

This version of the whitepaper documents features and algorithms that are implemented in Kratscoin [KTC] as of version 1.0. Future revisions will be made to reflect additional planned features and algorithm changes.

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3.0 Core Technologies

3.1 Encryption

The birth of Kratscoin [KTC] is definitely not another new "encrypted digital certificate", nor is it intended to be the "international legal currency" in digital form, and the ultimate goal is not to apply to "retail".

In many people's eyes, encrypted digital certificates can be used for decentralized encryption and storage in addition to applications. They can save accounting credentials in the blockchain while allowing easy liquidation. It requires only easy movement of the mouse and keyboard in comparison of going to the bank to complete functions of sending or transferring money. These are the original intentions and purposes of the birth of Bitcoin [BTC]. The emergence of "Bitcoin" has become synonymous with "encrypted digital certificate" based on blockchain technology and it is also named "the father of encrypted digital certificate".

In contrast, Kratscoin [KTC] should be named "the father of commodity encryption digital certificate", similar to metal goods. In the context as we can't use gold to make purchase directly nor can we eat gold. As time goes by, gold can only be stored in the form of ornamental value or value-added investment.

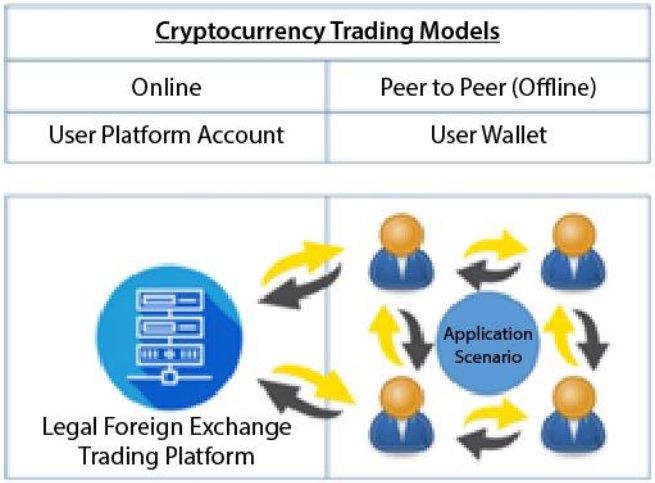
Gold is used as a resource reserve because of its “natural” scarcity, which is why its value can be higher than other metal cousins such as silver or copper. Just like any "encrypted digital certificate" being the same as "commodity" because it is generated by people's needs; therefore, governments must supervise and monitor it. In order for effective control, governments will introduce "serial number" to protect the funds or important resources of various countries outflow or illegal exports as a means.

The advancement of technology has made Bitcoin [BTC], and its use has become a reality. More and more people "join", "accept" and "trust" the use of "absolute decentralization" of Bitcoin [BTC] has made an unstoppable high level of new trend today. So most people do not want to miss the opportunity for this train to quickly earn wealth! Whatever the reason, the "encrypted digital pass" feature is only inconsistent with the "behaviour". Hence, the emergence of "commodity encryption digital certificate" is definitely the safe traceability of the new blockchain identification system!

3.2 Kratscoin [KTC] Identification Serial Number

Kratscoin [KTC] with serial numbers will never limit and take away the freedom of your financial flow, and definitely will not take away your privacy in anyway more different than Bitcoin [BTC]. While maintaining privacy rights, the serial numbers of Kratscoin [KTC] is a necessary means of providing crime prevention solution to regulators, focusing on security and guarantee for establishing a national financial order.

With the current development trend of technology and society, the use of "encrypted digital pass" to buy and sell transactions has become an indisputable fact. Like the traditional “legal currency”, we all know that there are two major trading methods:



1. Through the legal "foreign exchange trading platform" or "encrypted digital clearing exchange" mode, continuously convert the certificate to obtain the trading profit from it;
2. Or through the "peer to peer actual application scenario" direct wallet to the wallet's individual trading model as we transact directly in the physical store in exchange for goods or in an act of liquidation;

In today's blockchain application field, there are many “encrypted digital certificates” that have no serial number and are too difficult to track, so this has helped a lot of underground informal transactions. Due to the difficult control of governments, it has caused more and more serious social problems! Therefore, more and more national governments, especially China and India, have been continually and strongly arbitrarily controlling the use of such encrypted digital certificates.

What's more, in this "hacker-walking" world, how to securely protect your encrypted assets in these hard-to-track encrypted digital certificates has become the hottest challenge! The uninterrupted invasion of hackers is not only for forex trading. These "platforms" or "encrypted digital clearing exchange" caused great risk control losses, and more certainly made many users start to doubt the security confidence of using such encrypted digital certificates.

3.3 Electronic Serial Number

Kratscoin [KTC] can be easily monitored by governments; when there is an unusual "serial number without serial number" is it not the same to receive supervision and inquiry when trading on a “legally registered” foreign exchange trading platform or an encrypted digital clearing exchange? Before the transaction on the exchange, each user must pass the “real identity pass”, but in fact, the “legally registered” foreign exchange trading platform or the encrypted digital clearing exchange is legally transacting in billions of dollars. "Day Trading Volume", and most of today's users are middle-class and successful entrepreneurs with certain qualities. Are these people not afraid of being supervised? The pretext that as long as it is "real", there is nothing that needs to be scrupled! Users who understand the blockchain can seriously think about the "electronic serial number" that not only one enjoys the basic but also the Anonymous Privacy Protection in a more complete protection. These digital assets are deterrent to hacking and stealing!

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	Online	
	Online: User Platform Account	
Electronic Serial Number	No serial number pass	KTC certificate with serial number
Fraud of Theft by Hacker	Happen frequently and "cannot" be tracked	"Assist" in tracking
Privacy?	Both only can get "limited" privacy protection and the user must pass the "identity authentication" during trading	

	Peer to Peer (Offline)	
	User Wallet	
Electronic Serial Number	No serial number pass	KTC certificate with serial number
Fraud of Theft by Hacker	Happen frequently and hard to retrieve	"Assist" in tracking and retrieve
Privacy?	Both are anonymous trading	

As shown in the above figure and below the line, the actual comparison of the Kratscoin [KTC] certificate with serial number is far safer than the “No Serial Number Pass”, apart from the high possibility of support by governments. For users investing in the foreign exchange trading platform, the encrypted digital clearing exchange, it is the best option investing with "electronic serial number" for tracking whereabouts. Although these transactions can maintain anonymity, the foreign exchange trading platform or the encrypted digital clearing exchange are able to track such transactions in the event of fraud of theft by the “electronic serial number” contained in the e-wallet records of its legal ownership, thereby preventing hacking attack. The relevant law enforcement agencies can greatly improve the recovery attempt.

Kratscoin [KTC] does not take away the financial movement freedom nor does it take away your privacy. It merely provides authorities the necessary means needed for crime prevention and fighting. It only re-inforce security and safety.

- Kratscoin [KTC] is an upgraded version of the complete Bitcoin BTC, all with the same consensus and algorithm, the entire chain cannot be destroyed and extremely safe.
- Kratscoin [KTC] is absolutely mining compatible with all mining equipment or devices that exploits bitcoin such as S9 or T9 Antminers.
- Kratscoin [KTC] can also be developed and deposited into any Bitcoin [BTC] wallet. A cumulative difficulty value is stored as a parameter in each block, and each subsequent block derives its new difficulty from the previous blocks value. In case of ambiguity, the network achieves consensus by selecting the block or chain fragment with the highest cumulative difficulty. This is covered in more detail in section “3.6 Block Creation”.

3.4 Tokens

The total supply of Kratscoin [KTC] is 21,000,000.00000 units, 1 block appears every 10 minutes and 144 blocks every 24 hours, including halving at every 210,000 blocks.

3.5 Blocks

Kratscoin [KTC] ledger transactions is built and stored in a linked series of blocks, known as a blockchain. This ledger provides a permanent record of transactions that have taken place, and also establishes the order in which transactions have occurred. A copy of the blockchain is kept on every node in the Kratscoin [KTC] network.

In Kratscoin [KTC], each block contains up 1*, all prefaced by a block header that contains identifying parameters, all prefaced by a block header that contains identifying parameters. Each transaction in a block is represented by common transaction data, specific transaction types also include transaction attachment, and certain transactions may include one or more additional appendices. The maximum block size 2*.

1. Assuming an average transaction occupies 570 bytes of data, then a block can contain approximately 3,500 transactions, given the 1 MB limit.
2. The exact size depends on the types of transactions included.

All blocks contain the following parameters:

- A block version, block height value, and block identifier;
- A block timestamp, expressed in seconds since the genesis block;
- The ID of the account that generated the block, as well as that accounts public key;
- The ID and hash of the previous block The number of transactions stored in the block;
- The total amount of Kratscoin [KTC] represented by transactions and fees in the block;
- Transaction data for all transactions included in the block, including their transaction IDs;
- The payload length of the block, and the hash value of the block payload;
- The block's generation signature;
- A signature for the entire block;
- The base target value and cumulative difficulty for the block.

3.6 Block Creation

Three values are key to determining which account is eligible to generate a block, which account earns the right to generate a block, and which block is taken to be the authoritative one in times of conflict: **base target value**, **target value** and **cumulative difficulty**.

3.6.1 Base Target Value

In order to win the right to generate a block, all active Kratscoin [KTC] accounts compete by attempting to generate a hash value that is lower than a given **base target value**. This base target value varies from block to block, and is derived from the previous block base target multiplied by the amount of time that was required to generate that block using a formula that = average block time.

The calculation is based on the following constants:

- MAXRATIO = value required - max ratio by which the target is decreased when block time is larger than 60 seconds.
- MINRATIO = value required - min ratio by which the target is increased when block time is smaller than 60 seconds.
- GAMMA = value required

And the following variables:

- S - average block time for the last 3 blocks;
- Tp - previous base target;
- Tb - calculated base target.

The base target is calculated as follows:

- If S>60

```
Tb = (Tp * Min(S, MAXRATIO)) / 60
```

- else

```
Tb = Tp - Tp * GAMMA * (60 - Max(S, MINRATIO)) / 60;
```

3.6.2 Target Value

Each account calculates its own target value, based on its current effective value. This value is

where:

- T is the new target value;
- T_b is the base target value;
- S is the time since the last block, in seconds;
- B_e is the effective balance of the account.

As can be seen from the formula, the target value grows with each second that passes since the timestamp of the previous block. The maximum **target value** is ……x 10^{17} and the minimum target value is one half of the previous blocks base target value.

This target value and the base target value are the same for all accounts attempting to forge on top of a specific block. The only account-specific parameter is the effective balance parameter.

3.6.3 Cumulative Difficulty

The cumulative difficulty value is derived from the base target value, using the formula:

where:

- D_{cb} is the difficulty of the current block;
- D_{pb} is the difficulty of the previous block;
- T_b is the base target value for the current block.

3.6.4 Algorithm

SHA-256 is one of the successor hash functions to SHA-1 (collectively referred to as SHA-2), and is one of the strongest hash functions available. SHA-256 is not much more complex to code than SHA-1, and has not yet been compromised in any way. The 256-bit key makes it a good partner-function for AES. It is defined in the NIST (National Institute of Standards and Technology) standard 'FIPS 180-4'. NIST also provide a number of test vectors to verify correctness of implementation.

Individuals that wish to mine on the Kratscoin network must operate what is known as a mining node, which is a node that has been specially set up to mine on the network. Once a mining node is operational, miners can then begin to construct what are known as candidate blocks. These blocks must be properly constructed by a miner, and doing so requires that 6 parameters which are found in each candidate block be filled in correctly. These parameters include:

- Version – The version number of the Bitcoin software.
- Previous block hash – A reference to the hash of the previous block that was included on the blockchain.
- Merkle Root – A representative hash of all transactions that are included in the candidate block.
- Timestamp – A piece of information that references the time that the block was created.
- Target – The target hash threshold, this block's header hash must be less than or equal to the target hash that has been set by the network.
- Nonce – The variable that is used in the proof of work mining process.

The candidate block is then relayed to the rest of the network so that it can be checked for its validity. If the block is regarded as valid by the rest of the network, then it will be added to the blockchain.

3.6.5 Network Difficulty

Kratscoin [KTC] algorithm also incorporates what is known as network difficulty. This concept can be thought of as being the measure by which one can determine the difficulty of finding a correct hash value in the proof of work mining process. This difficulty can change based on an increase or decrease in the target hash value. For example, if the rate at which valid hashes are being discovered on the network increases, then the network target hash value will be lowered. This has the effect of reducing the number of valid hashes that are capable of being discovered. Conversely, if there is a decrease in the rate of correct hashes being discovered, then the network target hash value will increase in order to enlarge the number of valid hash values that can be found.

3.7 Accounts

Secret passphrase is generated as follows:

- The secret passphrase is hashed with SHA256 to derive the accounts *private key*;
- The private key is encrypted with Curve25519 to derive the accounts *public key;*
- The public key is hashed with SHA256 to derive the *account ID*;
- The first 64 bits of the account ID are the *visible account number*.

When an account is accessed by a secret passphrase for the very first time, it is not secured by a public key. When the first outgoing transaction from an account is made, the 256-bit public key derived from the passphrase is stored on the blockchain, and this secures the account. The address space for public keys is larger than the address space for account numbers, so there is no one-to-one mapping of passphrases to account numbers and collisions are possible. These collisions are detected and prevented in the following way: once a specific passphrase is used to access an account, and that account is secured by a 256-bit public key, no other public-private key pair is permitted to access that account number.

3.8 Transactions

3.8.1 Transaction Fees

Assuming all the inputs you are spending are from regular "pay to address" transactions, each input will contribute 180 (plus or minus 1) bytes to the transaction. Each output adds 34 bytes to the transaction. And there's a fixed extra 10 bytes which are always present.

The "plus or minus 1" comes from the fact that each input needs a signature to be claimed. The signature contains two 32 byte values, but if either of the values has a first byte of 0x80 or more, it has a 0x00 byte prepended to it. So I'm assuming one of the two is high and the other is low. That way I'm off by at most one byte per input.

So if your transaction has in inputs and out outputs, the transaction size, in bytes will be:

```
in*180 + out*34 + 10 plus or minus 'in'
```

For example, transaction that has 40 inputs and 16 outputs. That gives us a transaction size of

```
40*180 + 16*34 + 10 +- 40
```

i.e. `7754 +- 40` bytes. The actual size is `7761` bytes.

If the inputs are from "pay to pubkey" transactions then the inputs are smaller than for "pay to address" transactions. And this will be different also for "pay to script hash" inputs too, depending on how/if that's implemented.

3.8.2 Transaction Creation and Processing

If the sending account has sufficient funds for the transaction:

- A new transaction is created, with a type and subtype value set to match the kind of transaction being made. All specified parameters are included. A unique transaction ID is generated with the creation of the object;
- The transaction is signed using the sending account's private key;
- The encrypted transaction data is placed within a message instructing network peers to process the transaction;
- The transaction is broadcast to all peers on the network;
- The server responds with a result code:
  - the transaction ID, if the transaction creation was successful.
  - an error code and error message if any of the parameter checks fail.

4.0 Core Features

4.1 Advance JSON Client

A second-generation, user-friendly client application is built into the Kratscoin [KTC] core software distribution, and can be accessed through a local web browser. The client provides full support for all core Kratscoin [KTC] features, implemented such that users private keys are never exposed to the network. In a blockchain, each new data (a transaction) is stored in a block added at the end of the chain. To be added to the chain, this last block uses some of the information of the previous block, in order to ensure the integrity and immutability of the log.

The shape of the Kratscoin [KTC] blockchain is defined by the structure of its blocks. It was chosen to use a simple JSON file to store the blockchain. JSON is a widely known format, and can be read and written easily with Php, the scripting language being used to interact with data.

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6.0 Bitcoin Problems Addressed By Kratscoin

Kratscoin [KTC] is fully decentralized with no ownership nor control by any country, company or individual. This appendix addresses issues with the Bitcoin protocol and network that are mitigated by Kratscoin [KTC] technology.

7.0 Blockchain Size

The Bitcoin blockchain is the complete sequential collection of generated data blocks containing the electronic ledger book for all Bitcoin transactions occurring since its launch in January 2009. Four years later in January 2013, the size of the Bitcoin blockchain stood at 4 gigabytes (GB) about the amount of data required to store a two hour movie on a DVD disk. Eighteen months later, in July 2014, the size of the Bitcoin blockchain had swelled by almost a factor of five to 19 gigabytes (GB). The Bitcoin blockchain is undergoing exponential growth and modifications to the original Bitcoin protocol will be required to deal with it. Kratscoin [KTC] block size is currently capped at ……KB. Since its inception, almost 46,000 blocks have been generated and the blockchain takes up ……MB of space

8.0 Centralization Concerns

The increasing difficulty and combined network hashrate for Bitcoin has created a high barrier to entry for newcomers, and diminished returns for existing mining rigs. The block reward incentive employed by Bitcoin has driven the creation of large, single-owner installations of dedicated mining hardware[1], as well as the reliance on a small set of large mining pools. This has resulted in a centralization effect, where large amounts of mining power are concentrated in the control of a decreasing number of people. Not only does this create the kind of power structure that Bitcoin was designed to circumvent, but it also presents the real possibility that a single mining operation or pool could amass 51% of the network's total mining power[1] and execute a 51% attack. Attacks requiring as little as 25% of total network hashing power also exist.

In early January, 2014, GHash.io began voluntarily decreasing its own mining power because it was approaching the 51% level. After a few days, the pool's mining power was reduced to 34% of the total network power, but the rate immediately began to increase again, and once more reached dangerous levels in June 2014.

9.0 Kratscoin [KTC] Solutions

Each currency has its own unique name, design and colours but one thing every currency has in common are Serial Numbers. Kratscoin [KTC] with its unique serial codes in each unit provides the solutions required by Authorities and Regulators to establish money trials in order to curb criminal activities and money laundering. Provisions of assets trail does not take away your privacy but merely provides Exchanges the necessary means to be compliant with regulations while allowing the same financial movement freedom while re-inforcing security and better safety.

Financial Authorities are deprived of information on peer-to-peer transactions unless seeking e-wallet developers to unveil the ownership of the wallets but e-wallet developers are able to cause the destruction of such information or identities of suspected customers resulting in loss of trails. With serialized coded crypto assets, destroying information in exchanges or e-wallets would not disable Authorities or Regulators to track both origin and destination by identifying records of each token/coin in wallet address.

Corruptions, money laundering, unlawful proceeds, terrorism financing and capital outflow can now be monitored, controlled and avoided by capitalizing on the serial codes which can be easily detected, isolated or even systematically “marked”.

Many crypto-currency mining operations are carried out illegally by unpaid electricity which is financially damaging to power producers and utility companies. Serial Codes can determine if the any Kratscoin [KTC] is mined legally or illegally through it unique coded blocks creation.

Kratscoin [KTC] also provides the solution to Inland Revenue as taxation are imposed on digital assets in certain countries allowing origins or proceeds of serialized coded crypto assets evidently proof the legitimacy of the aforesaid token/coin.

Many are sceptical of their wealth being tracked and monitored. In this era of technological advance society, every applications carries the potential of being tracked. It is to this fact that there is a need for the Privacy Protection Act.

Crypto-Currency Exchange KYC [know your customers] procedure is designed to expose the identity of crypto assets ownership. The Blockchain is supposed to serve as a transparent information platform. The question of privacy over serial coded crypto assets does not exist, Kratscoin [KTC] does not make ownership any less private.

The human mind can never memorize the millions of serial numbers printed on fiat currencies. The records of serialized coded crypto assets will forever be in the Blockchain embedded within each transaction from wallet to wallet. Serial commodities such as gold can be melted down. Diamonds recrafted. Fiat double printed. Serialized Coded Crypto Assets can never be erased nor double spent.

Should an accessory system be added into the Kratscoin [KTC] blockchain, allowing reports on criminal activity be made within the Blockchain, notifying all ledgers of certain stolen Kratscoin [KTC], enabling WARNINGS and forbidding next transaction of that particular Kratscoin [KTC] unit, it would enhance protection. A theft deterrent function which can never be achieved with physical commodities or fiat.