



Earthcoin—Being committed to a fair and sustainable development

Earthcoin EAC

<https://www.eaczg.com>

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一、Introduction

1.1 The origin of block hain

The blockchain originated in 2008. In the cryptology mailing group, satoshi nakamoto published the paper "bitcoin: a peer-to-peer electronic cash system". In 2009, Mr. Nakamoto dug up the first block of bitcoin, called the creation block, in a small phone in Helsinki. And he created 50 bitcoins. Now Bitcoin is a leading digital currency, which core and infrastructure is block chain

1.2 The definition of block chain

Block chain is a distributed Shared database. Decentralized and trusted ways collectively maintain the reliability of technical protocols The protocols is intended to involve any number of nodes in the system, which creates block by associated

cryptographic method. The data "password" is generated to verify the validity of the information and links to the next database block.

1.3 The theory of block chain

Block chain technology makes use of a mathematical method to establish the trust relationship between transaction participants without the help of a third party, which reduces the cost of building trust almost to zero. Blockchain is a kind of technology and it is a distributed bookkeeping method that all the people take part in. The blockchain is connected by a single "block", like a chain, which is endless and lengthened. The new block will be added to the end of the block chain to form a link you add layer upon layer, all the bills will be a ledger. The new bill is added to the top of the ledger which will constantly become thickened. To avoid billing errors and maliciously tampering with billing data, each bill is indexed to connect. The technical term for index is called hash value.

1.4 The introduction of Bitcoin

As we all know, traditional credit system is mainly issued by third parties. Mr Nakamoto argues that third party has high cost and much disadvantages which is not suitable for global trade. Worsely, it brings much disadvantages to global trade on the Internet. Therefore, he hopes to establish the credit of human currency based on P2P cryptography. In this way, money and information can run fast on the Internet, and the cost is close to zero. If you want to invent digital currency based on P2P system, the first thing is to solve the problems "double use", which exists in digital currency industry for a long time. So we need to ensure that every digital coin will be spent once only. In other words, it will prevent false coin. Satoshi Nakamoto's innovative design of is to prevent counterfeiting by covering the time stamp, joint bookkeeping, and open network, so as to avoid the problem of repeated payment. The completion of these tasks requires the bookkeeper to perform, but labor is not free. Another design beauty of bitcoin is the self-circulation. Bitcoin is generated and issued by the entire network of miners who have been involved in bookkeeping. So it does not rely on any institution. Each bookkeeper needs to provide his computer to calculate the power of the bitcoin transaction in the whole network, so as to ensure that there will not be repeated payment; The system will reward the fastest and best bookkeeper 50 bitcoins in every 10 minutes. Moreover, the reward will be halved every four years, and now it's 25 bitcoins in every 10 minutes. That's the process of bitcoin generation.

The bookkeeper is called the miner, and the whole process of accounting is mining. The limit is set to 21 million and is expected to be completed in 2140 ,during this period , no other bitcoin will be created.

1.5 The theory of Bitcoin

Every bitcoin transaction is broadcast to the entire network, with the aim of finding bookkeepers (miners). Because successful bookkeeping means you can earn bitcoin. But there are a lot of competitors. At this point, a screening is needed. The method is to prove the mechanism through the workload, and the fastest miner can compete for the legal accounting right of the ten-minute block. Every miner must record every transaction in 10 minutes and stamp it with a timestamp. After the completion of the record, all the time stamp transactions in the block will be announced to the whole network, and the other miners in the network will check the backup. After confirming that there is no error, the miners begin to compete for the next block after the legal block. Thus it will form a legal single chain or blockchain. This is blockchain. The whole bitcoin block chain originates from the founding block and the founding block of the bitcoin block chain was created by Satoshi Nakamoto. According to the current application of block chain technology in bitcoins, each transaction needs to be confirmed by at least six blocks in order to be recognized as a legitimate transaction. The system automatically adjusts the creation time of each block to about 10 minutes according to the difficulty of the algorithm and the waiting time of 6 confirmations is about an hour. That is to say, you need to spend one hour receiving bitcoins.

1.6 The introduction of Litecoin

The Litecoin (LTC, £) is a network currency based on the "peer-to-peer" technology and an open source software project under the MIT/X11 license. It can help users pay immediately to anyone in the world.

1.7 The theory of Litecoin

LTC is inspired by the BTC, has the same implementation principle in technology. The creation and transfer of LTC is based on an open source encryption protocol that is not managed by any central authority. It is aimed at improving bitcoin, which has three significant differences.

- The Litecoin network can handle a block every 2.5 minutes, rather than 10 minutes, so it can provide faster transaction confirmation.

- LTC is expected to produce 84 million on the Internet ,which is four times more than BTC.

It uses the proposed script encryption algorithm by Colin Percival in its workload proof algorithm which makes it easier to dig up on a common computer . Each coin is divided into 100 million units, defined by eight decimal places.

A point-to-point network, similar to bitcoin, is used to deal with the transactions, balances and distribution of Wright COINS through the Scrypt workload verification scheme. (When a sufficiently small hash value is found, a block is created and the coin is issued .Therefore, the process of finding the hash value and creating the block is called "mining.") The rate of issuing LTC is in the geometric sequence. Every four years (840,000 pieces) is cut in half, eventually reaching 84m LTC.

Unlike bitcoin, the memory-intensive features of Scrypt make LTC more suitable for the "mining" of the graphics processor (GPU). FPGA for Scrypt (field programmable logic gate array) and ASIC (dedicated integrated circuit) are more expensive than bitcoins.

二、 EAC System

2.1 Earthcoin System

Earthcoin (EAC), a global cryptocurrency based on the scrypt algorithm, was released in Toronto, Canada, on December 20, 2013. The earth coin will be a real measure of the value of the earth's resources,which encourages openness, fairness and trust.

- EAC goal: the earth coin is committed to sustainable and equitable development and quantified earth resources.

EAC vision: EAC makes the earth each resource have constant digital assets unit.

2.2 The theory of EAC

The total amount of EAC is 13.5 billion, which period is 365 days, starting with 10,000 COINS each day .It changes the sine curve with the amplitude of 2000. It means that the first 10,000 EAC will be adjusted to reach 12,000 EAC after three months., About six months later, it goes down to 10,000 EAC and it goes down to 8,000 after nine months. And then it goes up to 10,000 after a year. it will pay it in

half. Every 14 days there will be twice as much output per day, and five times as much output every 31 days.

3.3 The technical feature of EAC

- **Collectively maintain:** The data blocks of the system are maintained by all the maintenance nodes in the entire system and these maintenance nodes are accessible to anyone.
- **Reliable Database:** The entire system allows each participating node to obtain a copy of the full database by sub-database. Unless you can control more than 51% of the nodes in the system at the same time, the changes to the database on a single node are invalid and cannot affect the data content in other nodes. Therefore, the more nodes and the stronger computing power in the system, the higher the data security in the system.
- **Open Source:** Since the entire system must be open and transparent, the entire system must be open source for the program.
- **Anonymity:** Because there is no need to trust each other between nodes and nodes, no public identity is required and the privacy of each participating node in the system is protected.

3.4 The core algorithm of EAC

Mr Colin Percival, the inventor of the Scrypt algorithm, created a Tarsnap website in 2006 so as to provide a highly secure online backup service, which is provided by the Scrypt algorithm. The Scrypt algorithm can be very good to resist the massive key generation test password. The contents of Tarsnap's network are encrypted. Therefore only the users can decrypt it and Tarsnap can't see the content of the user's file. The earth coin is a global currency that encourages openness, fairness and trust and is committed to sustainable and equitable development. It is unfair for users that the bitcoin mining pool concentrates on mining, which will result in that some organizations or institutions control the whole bitcoin Intertnet. In this way, it violates the original intention of decentralization. Therefore, the founding team of EAC used the Scrypt algorithm of LTC to replace the SHA-256 algorithm in mining. After using the Scrypt algorithm, nonce collision consumes a lot of CPU performance and requires a lot of memory space. Therefore, the scrypt of the earth currency not only requires long time to calculate, but also occupies more memory, This makes it difficult to calculate multiple summaries in parallel and greatly increases the cost of

mining. Mine pool is incapable of digging EAC with low cost ,so EAC is fairer than BTC.

Script is a KDF algorithm. KDF is the meaning of key export function, which is mainly suitable for generating keys. The purpose is to avoid hackers to generate the key to probe the password with low cost. The effect of Script is used in the nonce collision of EAC so as to avoid t mine pool dig coins with low cost.

The Script algorithm takes up a large amount of memory in operation and the hardware layer of the memory is high which makes it impossible for mining pool to dig in large quantities with low cost. The following is the description of the algorithm

in "The script password-based Key Derivation Function" :



Script algorithm can produce a p block element array, The value of p is probably a few orders of magnitude smaller than 2^31(4.2 billion), and the actual use may be ten thousand to million. For each block element, it's a hash value that is generated by a series of complex operation. Finally, the final result of pbkdf2-hmac-sha256 operation is performed on the whole array.

三、EAC Applicatio

3.1 Environmental resources on the earth

- Three vital ingredients: air, water and soil;
- □ six kinds of natural resources, mineral resources, forest, fresh water, land, biological species, fossil fuels (oil, coal and natural gas);
- □ two types of ecosystem: terrestrial ecosystem, such as forest, grassland, wild, brush, etc.) and aquatic ecosystems, such as wetlands, lakes, rivers, oceans, etc.);
- □ diverse landscape resources: landform, water, the type of native plants and animals, natural and cultural heritage, etc.
- Air resources: Air is the gas that makes up the atmosphere around the earth. The main components of air are nitrogen and oxygen which is colorless and tasteless. Besides, there is also a very small amount of radon, helium, neon, argon, krypton, xenon and other rare gases and water vapor, carbon dioxide and dust. Under the normal temperature, air is colorless and tasteless. Liquid air is light yellow, which easily flows. Generally, carbon dioxide is removed when the air is liquefied. Therefore, liquid air is made of 20.95% oxygen, 78.12% nitrogen and 0.93% argon. And the content of other components is small and negligible.

3.2 Environmental state on the earth

Human intervention or influence on the environment has increased dramatically in these thirty years. Some of the earth's layers (such as atmosphere, water, and biosphere) have changed in quantity or quality, causing real harm and potential threats to the human and biological world. Therefore, human beings have to consider and solve environmental problems from the whole earth in certain situations. Currently, there are many global environmental problems in the natural environment and social environment. The dangers caused by these problems are often interrelated or interlinked, even with far-reaching consequences.

The imbalance of the ecosystem.

The global circulation and energy flow also have a great impact on the biosphere. For example, there have been great benefits to humans since the use of organochlorine pesticides, which are effective in killing pests. Every year millions of people are saved and crops are increased because of killing pests by pesticide. But this unbreakable pesticide can be passed through the food chain, which accumulates in body and bring harm to people and other creatures. If this situation develops, the

ecosystem will be severely damaged. The increase of radiation energy on the earth will also bring great harm to the biological world, such as the unrecoverable damage of human genetic function and the mutation of biological heredity.

- Global warming

Data shows that global temperatures have risen 0.6 percent over the past 100 years due to a large amount of greenhouse gas emissions. Some people believe that global warming is a large-scale environmental disaster. Because of global warming, the oceans are expanding and the poles are melting. This makes the sea level rise, endangers the economic development and people's livelihood in coastal areas. Moreover, it brings bad effects on agriculture and natural ecosystems, such as exacerbating floods, droughts and other meteorological disasters. In addition, climate change will affect human health, such as increasing disease risk and mortality and infectious diseases.

- The decrease of biodiversity

Currently, the decrease of biodiversity on earth is fastest in history. The extinction rate of birds and mammals in this era may be 100 to 1,000 times greater than in the undisturbed natural world. Humans have extensively cut down forests and overhunted wild animals. Industrialization and urbanization lead to pollution. Soil, water, and air are polluted. In addition, vegetation destruction and uncontrolled tourism are the main reasons of global warming. Global warming is the cause of mass extinctions or near-extinction. The reduction of biodiversity will gradually undermine the foundation of human existence.

- The destruction of ozone sphere

In 1985, British scientists observed an ozone hole in the sky above Antarctica and confirmed that it had a direct relationship with the chlorine atoms produced by freon decomposition. The news shocked the world. The depletion of the ozone layer means that a large amount of UV radiation will be emitted directly to the ground. This leads to increased incidence of skin cancer and cataracts and suppresses the human immune system function. Crops were damaged and reduced. The food chain of the Marine ecosystem is destroyed, resulting in the destruction of ecological balance. Although high airborne ozone is decreasing, the increase of ozone in the air will also cause photochemical smog, bring great harm to forests, crops and buildings, etc. It can also cause human disorder and poison.

- The spread of acid rain

The acid rain, known as the "demon of the air", has become a widespread and transnational phenomenon of air pollution. Acid rain will destroy the soil and acidify the lake. It can harm plants and animals and it can irritate people's skin and induce skin diseases. At the same time, this causes pulmonary edema, pulmonary sclerosis. Acid rain corrodes metal products, paints, leather, textiles and carbonate-containing buildings. At present, 30% of our country has the phenomenon of acid rain, mainly in the south of the Yangtze river.

- Sharp cutoff of forest

At the moment, the world's tropical forests are shrinking at a rate of 17 million hectares a year, and the temperate forests are also heavily logged, with an acre of forest disappearing every second. Not only it is a direct threat to 90 percent of wildlife, but most of the 200 million people living in forests get away from homeland. If the world does not take effective measures, the forests will be reduced by 225 million hectares by the end of the 20th century. The forest resources in tropical zone will totally disappear and the forest in the temperate zone and frigid zone will largely disappear.

Land desertification

This is the most serious environmental and socio-economic problem in the world. According to the relevant information, six million hectares of land become desert every year. The Asia-Pacific region is a region with serious desertification. China, Afghanistan, Mongolia, Pakistan and India are greatly affected by desertification.

- Atmospheric contamination

- The main pollutants are suspended particulate matter, carbon monoxide, ozone, sulfur dioxide, nitrogen oxide, lead, etc. Air pollution can lead to climate change, acid rain and ozone depletion. This is harmful to animals and plants, and it also affects human health.

- Water pollution

According to a report released by the World Environmental Protection Organization, human pollutants dumped in the ocean have harmed the health of water workers and swimmers. The bacteria and viruses in the pollutants may cause hepatitis, cholera, gastroenteritis and polio. The rudeness of man in the sea received retribution. The pollution of the sea has planted a "time bomb" for mankind. Most of

the world's rivers are contaminated in varying degrees of pollution, with about 40 percent of the river's steady flow being polluted. Global water pollution causes 1 billion people sick each year and 3 million children die from diarrhoea.

Marine pollution

Every year billions of tons of silt, sewage, industrial waste and chemical waste flow directly into the ocean. Rivers also bring about 10 billion tons of silt and waste into coastal waters each year. Marine pollution has caused red tides, which results in a sharp drop in coastal fish and shrimp.

- Solid waste

The rubbish invades a lot of land and brings bad effects to farmland. It seriously pollutes the air and water. Garbage can spread disease and dangerous waste would induce cancer.

3.3 The application of EAC

The goal of the earth coin is to strive for sustainable and equitable development. And it devoted to quantifying the earth's resources and keeping the earth each resource have constant digital assets unit. The network storage is realized through the EAC block chain technology by some resource data, such as mineral, forest, freshwater, land, biological species, fossil fuels (oil, coal, natural gas). The expansion and enrichment of data sources lays the foundation for the sustainable and equitable development of the EAC earth resources big data industry.

3.31 EAC data acquisition system.

- The core value of EAC data acquisition system is to automatically collect and upload process data to the block chain platform. There is no need for manual intervention to achieve the uniqueness and credibility of data.
- Collect raw data through data acquisition sensor on the Internet of things
- Data collected by EAC is uploaded to the block chain level via the API edge gateway

The EAC block chain authenticates the data source transmitted by the edge gateway, which ensures that the data is uploaded by authenticated nodes.

With the continuous development of information technology, data that was once unavailable was recorded and applied on the Internet. These data can be divided into Internet data and Internet of things data by source. Networked data refers to the environmental data which is collected by sensor. Internet data refers to the basic information and behavioral data generated by users via computers, smartphones, tablets and other Internet terminals.

The EAC team is incapable of collecting data, but it does not affect the data collection results of EAC. EAC will conduct data network information cooperation through international data acquisition enterprises. Data monitoring is achieved through sensors which are installed on the Internet of things so as to collect Internet data and user behavior data. After combining the information with high speed, the data is stored in the EAC block data center.

3.32 EAC consensus data processing system.

Based on the underlying block chain platform of bitcoin, the consensus data processing of EAC realizes the classification and storage of data collected by EAC devices. Consensus data is stored in block chain and pictures and product data are stored in IPFS distributed storage. We introduce the meckel tree storage of EAC to solve problem.

- The underlying block chain platform of EAC realizes the classification and storage of data collected by EAC devices.
- The consensus data, which is processed by visual data such as pictures and curve data, is stored in the EAC block chain. EAC processes data collected and analyzes and processes data (including numerical and non-numerical data). Moreover, it will analyze, organize, calculate and edit all kinds of raw data. The purpose is to extract valuable information from a large number of unstructured data. Finally, data visualization is formed. This makes it easier to read and understand and use by visualizing the abstract result data processing and pictures.

EAC data storage system.

At present, the storage of big data industry relies on cloud storage technology. Storing massive amounts of data in the cloud can both reduce the cost of data storage and

improve the efficiency of data processing. However, considering the serious situation of network security, there are various means of attack such as DDoS attack and Web attack. Data stored in the cloud also needs to be secured in order to prevent data from being compromised by an attack. .

The goal of EAC, is to be a data Storage solution provider like agile Storage. Its adaptive flash memory platform can provide a wide range of application scenarios. It can also adjust the flash strategy according to the user demand and select the all-flash mode or the hybrid storage service.

EAC data storage system is a platform for sharing and trading data. We establish a platform in which data can be shared ,exchanged and traded . It provides convenient transaction links and services for data resource suppliers and demander. .

- EAC sets the tag ID, location and time, tracker, sensor, and gateway ID.
- The EAC block chain platform stores the certified data.
- EAC broadcasts to all nodes in EAC.

The enterprise or terminal user USES data through the EAC block platform.

四、 EAC conclusion

4.1 EAC information

Official website:

◇ <http://www.deveac.com/>

◇ <http://www.eacpay.com/>

EAC CHINA:

◇ <http://www.eaczg.com/>

Forum:

◇ <https://bitcointalk.org/index.php?topic=2161853.0>

◇ <https://www.reddit.com/r/Earthcoin/>

Block browsers:

◇ <https://chainz.cryptoid.info/eac/>

EAC wallet:

◇ <https://github.com/Sandokaaan/earthcoin/releases/tag/v1.5.3>

4.2 EAC CHINA

EAC China was founded by the earth coin enthusiasts from all over the country in October 2017. The goal of the community is to let more people know about the earth coin and use the earth coin. Using the earth currency develops and supports the application of currency. EAC CHINA gives its intrinsic value a greater boost. EAC chian has established its official website, weibo, post bar, public number and so on. After nearly three months of accumulation and explosion, the members of the EAC China increased from 500 to 10000.

4.3 EAC foundation

The EAC foundation was established in December 2017. The foundation is an independent, fair and transparent non-profit organization. Its full name is EarthCoin Foundation China, or EFC or EFChina. The earth coin foundation is organized by EAC China. The nature of the foundation is a third party non-profit organization, which operates in an independent, fair, transparent and voluntary principle. The foundation's work is to operate money from fans of EAC coins from all over the country. The foundation occupies the research. It needs to promote the development of the coin-related industry and the philanthropy related to the earth currency. and promotion of the earth coin technology and the daily maintenance.

4.4 EAC online platform

- ✧ <https://www.aex88.com>
- ✧ <http://www.coinegg.com>
- ✧ <https://www.funcoin.co>
- ✧ <http://www.zbtc.hk>
- ✧ <http://www.huocoin.com>
- ✧ <https://wallet.bitshares.org>
- ✧ <https://www.fubt.top>
- ✧ <http://www.bitbitx.com>
- ✧ <http://www.novaexchange.com>

4.5 EAC mining pool

- ✧ <http://eac.coinpoint.org/>
- ✧ <http://eac.hackshard.com>

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- ✧ <http://eac.eu.hackshard.com>
 - ✧ <http://eac.us.hackshard.com>
 - ✧ <http://earth.scryptmining.com/>
 - ✧ <http://adtpool.co.uk/>
 - ✧ <http://earth.vircurpool.com>
 - ✧ <http://earthcoin.no-ip.biz>
 - ✧ <http://eac.poolerino.com/>
 - ✧ <http://earthcoin.no-ip.biz>
 - ✧ <http://earth.coinium.org/>
 - ✧ <https://eac.bettercoin.org/>
 - ✧ <https://eac.suprnova.cc/>
 - ✧ <http://speedminers.com/earthcoin/>
 - ✧ <http://eac.cryptoculture.net/>
 - ✧ <http://earth.bitcrush.info/>
 - ✧ <https://www.miningpool.co>
 - ✧ <http://earth.awesomemining.co.uk/>
 - ✧ <http://115.29.149.227/>
 - ✧ <http://coinpool.de/eac/>
 - ✧ <http://eac.botpool.net/>
 - ✧ <https://coinex.pw/mining/pools/EAC>
 - ✧ <http://eac.livechains.net/>
 - ✧ <http://pool.instant-wallet.com>
 - ✧ <https://pool.chunky.ms/eac/>