MIL Coin Blue Paper

(EMC2 Fork 1:3)
Version 1.0
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*"**The Paradox -** Science has always been the main driver of human advancement, yet science has always struggled to thrive in societies which could not fully acknowledge its primary role and which have even fought it - either for religious reasons or for plain stupidity. In fact, science has always benefited societies in spite of the hostility or indifference towards it. Even today, when in most of the civilized world science is recognized as a crucial aspect of society, scientific research is often underfunded, especially for any branch of science which does not guarantee a fast way to convert funded research into money. We thus experience the paradox of the most useful "engine" of human evolution, science, having to deal with a permanent lack of resources provided by shortsighted communities."* - **Roberto Quaglia**

Einsteinium for the Future

The long term vision of Einsteinium is to harness the power of a global community to use digital currency to "vote" on what they feel is most needed to protect and/or advance our civilization. A good example of this is our international approach towards the growing climate change crisis. By allowing funds to circumvent political roadblocks, we can accelerate our ability to create rapid and necessary change.

In our current economic model, 2% of all coins which get mined are systematically placed in a pool which is earmarked to support worthy scientific research projects in need of funds. In the last few years, several of such projects have already benefited from EMC2 funding.

Fully decentralized systems will usher in a new age of human equality and cooperation. However, at the current moment this process still requires human intervention. Much work remains to be done if a trustless protocol is to function as ideally as it should. Once we are able to create a completely trustless system, which would automatically support critical science projects and/or reward scientists for generational breakthroughs, then we can rightfully say that we have achieved a paradigm shift in the way human society interacts with science. And with money.

As a matter of fact, we can't think of a more ethical form of money than a coin with the embedded intrinsic and trustless feature of funding science - the engine of human ingenuity.

We strongly believe that this is possible, but we are also aware that this is a monumental task to accomplish. We are moving in uncharted territories. More development is needed, more tech has to be brought into play, more resources are necessary.

EMC2 & MIL

Since it came into existence, the Einsteinium Foundation has changed personnel, as the original team of developers abandoned the project in mid 2014. For several months, the project lay dormant until the current team took over in summer of 2016.

Operating in an extraordinary fast-paced environment comes with significant challenges ranging from technical, financial, legal, and security to organizational and social.
The foundation has managed to overcome many of these challenges, continuing to learn and grow along the way. After long discourse, we have clearly identified several areas we feel are necessary to improve upon in order to be able to advance the pursuit of our mission.

Decentralization is a highly valuable characteristic in the blockchain space.
While creating one of the most decentralized and most distributed networks in the blockchain space, functioning without governance for two and a half years created some permanent difficulties, which we aim to remedy through the evolution of this project.

Utilizing our knowledge of blockchain technologies, our experience working with projects and communities, and to fit current market dynamics and requirements in the best way possible, the Foundation decided to release a new coin as a compliment to the EMC2 network.

We call it **MIL**.

Using both coins as a tool to search, recognize, reward and even fund the best scientific research, our ability to expand our reach and further the cause will be significantly stronger.

The Einsteinium Foundation is embarking on a truly ambitious path likely to change how cryptocurrency is viewed and used in the real world. Such a mission requires a complex system of apps, platforms, services and coins, but all simple to use, under its hub.

MIL

For this reason, to help this vision become a reality we've decided to create MIL.

MIL will be an evolved chain, forked from EMC2 (see technical specs of MIL below). While EMC2 will continue to support promising scientific projects, MIL will focus on rewarding scientists who have already achieved important scientific goals.

But the real new function of MIL we are looking forward to is the eventual creation of an automated AI-powered platform which will be able to achieve fully trustless, autonomous allocation, paying rewards to the beneficiaries from pools of coins which will be locked in advance so as to ensure an unstoppable chain of trustless payments for decades to come.

We have precise ideas on how to achieve this goal, but we are also aware that the tech built to date isn't fully ready yet. It likely won't be ready for another several years or more. Yet, AI is evolving rapidly and projects such as ours must maintain a certain fungibility so we can promptly adapt and integrate every new available tool.

It is for this reason we have not set in stone the technical details regarding this aspect in this current version of our blue paper. We expect to release more details as soon as we deem it appropriate to do so. For now, MIL is starting as a rather centralized project which, technology permitting, will achieve its full decentralization over the course of the next several years. This is one of the reasons MIL is needed as a child chain of EMC2. In a more distant future we are planning to integrate EMC2's and MIL's functions to work seamlessly with one another so as to create a unique ecosystem.

The final aim for MIL's AI is to be able to determine in full autonomy who the beneficiaries of the MIL science awards are, in a completely trustless way.

We are aware that this is an extraordinarily ambitious project, at the edge of what is eventually possible, or perhaps even still impossible in the present time.

But as the great author Robert Heinlein once said, "*Everything is theoretically impossible, until it is done.*" We'll start from entirely human-determined beneficiaries. Then we'll have several stages of collaboration between humans and AI, in which the AI should "learn" to perform its task, educated by humans. And only when the AI's results finally meet the community's expectations, the full authority to choose the winners would be handed over to the AI and the system will become completely decentralized.
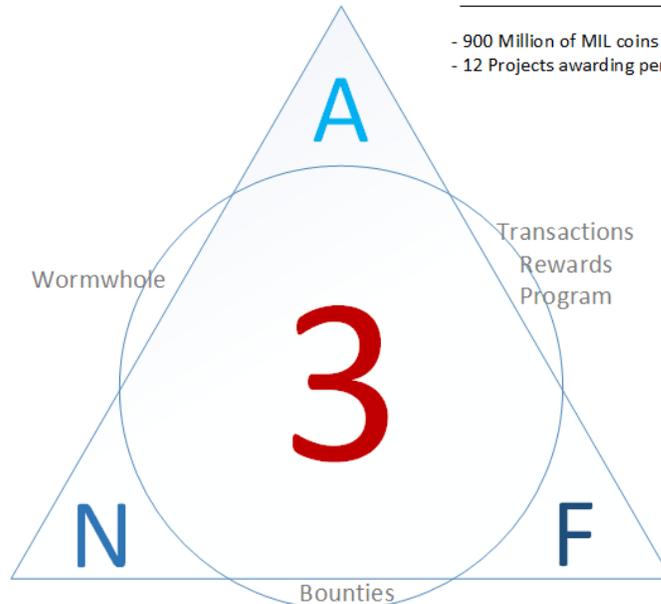
The Fork
Target EMC2 snapshot block is **2402717**

- MIL Coin is a fork of Einsteinium in 1:3 ratio
  For every one (1) EMC2, three (3) MIL will be distributed
- The max supply of MIL will be not exceed 2.7 Billion
  please check 'The Numbers' section for budget and distributions details
- The supply of EMC2 will not change, and the Einsteinium Foundation will continue the development and maintenance of both EMC2 and MIL coin
- MIL contains elements of LTC, ETH and EMC2
- MIL is GPU Friendly and implements ETHalgo, KMD dPoW, Wormhole, SegWit, DigiShield
- Mimblewimble will come as first upgrade after initial MIL release
- Genesis block will be mined by the Foundation for the purpose of securing funds for Einsteinium Awards program as well as foundation expenses including coin development and maintenance, marketing, bounties and others.
- Coin distribution will occur in very next blocks following genesis
- Source code will be published after coin the distribution

The Numbers

1/3 Einsteinium Awards 900M

A

- 900 Million of MIL coins budget for next 100 years
- 12 Projects awarding per year

Wormwhole

Transactions
Rewards
Program

3

N

F

Bounties

1/3 Network 900M

- 660 Million to be distributed to current EMC2 holders
- 240 Million for future mining
- 50% of mining rewards to come from Wormwhole

1/3 Foundation 900M

- Development
- Marketing
- Listings
- Bounties

2.7 Billion is the max supply of MIL coin, to be reached in 100 years
- **Network Budget is 900 Million or 1/3 of total supply**
- 660 Million will be distributed to the current EMC2 holders (1: 3 ratio)
- 240 Million will come into supply through the mining process
    - 50% of Network Budget will come through regular mining and
    - 50% of Network Budget will come Wormhole events
        - 12 Million (or 10% of Wormhole budget) will go to Transaction Rewards Program
- **Awards Budget is 900 Million or 1/3 of total supply**
- 9 Million/year will be donated each year for next 100 years to multiple projects (12)
- **Foundation Budget is 900 Million or 1/3 of total supply**
    - 300 Million for the Listings and Marketing
    - 300 Million for the Development
    - 300 Million for all other expenses

MIL Specification & Features

MIL Specifications

- Max Supply: 2.7 Billion
- Immediate circulating supply after genesis: 640 Million
- Block Time: 60 sec
- Initial Block Rewards: 8 coins
- Wormhole Rewards Multiple: 432 times regular block reward
- Wormhole duration: 6 days each epoch, for next 10 years
- Wormhole premium block probability: 16%
- Halving at blocks: 637920, 2740320, 6945120, 41539066
- Mining Algorithm: ETHash, GPU Friendly
- Difficulty Re-Targeting: KGW
- RPC Port: 51879
- P2P Port: 41878
- 51% Attack resistance mechanism: KMD dPoW

Ethash

Ethash is a stable and well known GPU algorithm that will expand our mining community. The Foundation will have access to numerous miner organizations and also independent miners, that can result in a wider awareness of charitable efforts and supported science projects. Einsteinium developers implemented Ethash into the existing Einsteinium code, and overcame all issues, both large and small in scale that caused miscommunications between the two protocols. The whole process enables MIL coin to contain a strong GPU algorithm and still remain easily integrated into the existing Einsteinium platform. Current MIL coin proof of work implementation is well tested and will be soon available to all community members. The Einsteinium Foundation will provide a customized open-source mining pool code that will support existing GPU miners. The provided miner pool code can be easily upgraded or optimized. Integrating Ethash into MIL coin will produce some great side effects. One of them is an unchangeable Nonce which can be used in random calculations such as the Wormhole.

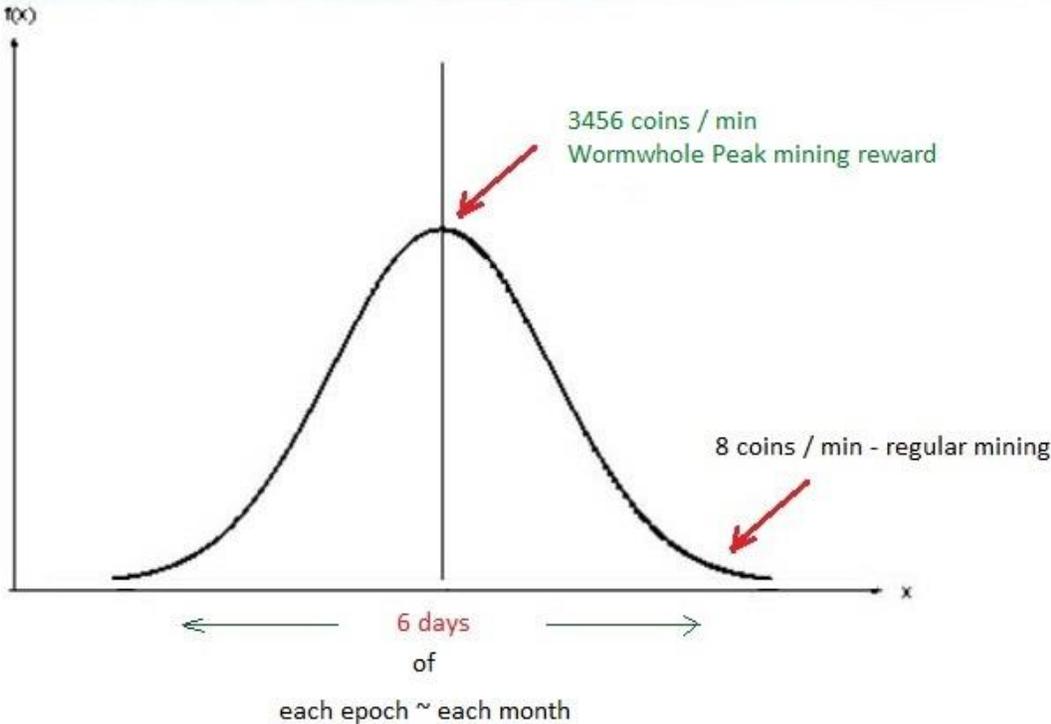Detailed Ethash spec: https://github.com/ethereum/wiki/wiki/Ethash

Kmd dPoW

In September 2018, the Einsteinium Foundation recognized Komodo dPoW as one of the best existing network security solutions. Komodo has an excellent core team, as well as a great and dedicated community of developers who are building incredible tools for the entire Crypto community. Since its implementation, EMC2 has undergone serious blockchain attacks, which were successfully rejected due to the integration of dPoW. As a result, dPoW will be a significant feature of MIL coin.

Detailed dPoW spec: https://github.com/SuperNETorg/komodo/wiki/Delayed-Proof-of-Work-(dPoW)-Whitepaper

Wormhole

The wormhole was one of the rare and most beloved features of EMC2. It created heightened anticipation for big block rewards. It attracted the mining community and traders alike, and ultimately inspired crypto developers to determine Wormhole range. Yet, the wormhole feature attracted malicious miners to perform chain reorganizations and get the entire wormhole reward. The Einsteinium Foundation recognized this serious issue and was forced to disable the feature. Now, we are pleased to announce that we've developed a new version of Wormhole, which is resistant to malicious attacks! Thanks to the Komodo dPoW feature, chain reorganizations cannot be performed and miners acting in bad faith will not be able to get the maximum number of coins because of block reward randomization. The Einsteinium Foundation will successfully bring solid rewards back, now much safer!

Mimblewimble

An exciting new breakthrough, Mimblewimble has developed and released a number of cryptographic innovations such as confidential transactions and CoinJoin. Mimblewimble offers a strong scaling solution, as well as increased privacy for the Bitcoin protocol. As of the writing of this paper, there are currently two live implementations of MW. We anticipate MIL being the third solution, applying these incredible new features into the core of MIL's code to ensure that our chain is on the cutting edge of what's possible.

⧳ About The Einsteinium Foundation

The Einsteinium Foundation is an official Non-Profit Organization, and the world's first NPO to be backed by cryptocurrency. The defining characteristics of the Einsteinium Foundation are:
1) Its ongoing commitment to research and charitable missions throughout the world, and
2) Safeguarding, maintenance and development of Einsteinium and its related products.

Scientific research is a long-term investment in our future, and the future of our planet. Funding around the world for 'big ideas' has fallen dramatically in recent years. In direct response to this, the Foundation awards grant money to worthy applicants. There are no restrictions on which projects are eligible but they must be scientific in nature, working to push our knowledge and understanding further, and strive to build us a better, safer and more stable future.

Our mission is to play a part in restoring humanity through funding scientific research vital to the advancement of our species and the safety of our ecosystem. Furthermore, we intend to build long lasting relationships with other NPOs and scientific organizations worldwide in order to support future ground breaking science projects of all kinds.

Einsteinium Awards

In our ongoing effort to support scientific research, we established the Einsteinium Awards in 2018. Our goal was to create an opportunity for researchers all over the planet to receive a contribution towards their efforts. In our first year, we received hundreds of submissions and selected two prize winners which were announced on January 14th 2019. The two recipients were Dr. Thang Hoang and Michael Sayre.

Dr. Thang Hoang has widely published, including six first author papers, his work as a PhD candidate in Electrical Engineering under Professor David V. Plant's supervision in the Photonic Systems Group at McGill University. His cutting-edge work on a novel and effective self-coherent transceiver using Stokes Vector modulation may impact global information traffic and allow for faster data connections.

Michael Sayre is the CEO of Global Cell Med, a biotech company specializing in a regenerative medicine approach to treating diabetes. The company has published its therapeutic strategy and is currently conducting clinical trials on patients with chronic Type 1 Diabetes, with very promising early results.

Our first annual award attracted a global pool of applicants with equally diverse backgrounds. This included an applicant in the social sciences from Georgia State University and a stem cell biologist from the First Moscow State Medical University.

The inaugural class has set an amazing example on what community based and open science can be. We look forward to our applicant pool next year.

www.emc2.foundation

About Einsteinium (EMC2) Coin

Einsteinium coin (EMC2) was announced on March 1st, 2014 by the Einsteinium Foundation. Its genesis block occurred the same day.

The maximum number of mineable EMC2 is 245,465,283.
All coins will be in circulation by the year 2064.

As part of the design, a 2.5% mining tax was created. When coins are mined, 2.5% are automatically donated to the Foundation Fund. 2% to be given to science projects and 0.5% going towards faucets, donations and marketing costs. This fund account is fully transparent and each transaction recorded on the public blockchain to ensure correct appropriation of funds.

EMC2 Coin has the following properties which focus on its ability to be considered a functioning currency for generations to come:

- **Medium of Exchange -** Einsteinium is openly traded on major international exchanges and in the future will be available to be used for purchasing goods and services all over the world. While it is not presently a universally accepted form of payment, new features, such as the lightning network, will enable EMC2's ability to transact on a global scale.
- **Store of Value -** Due to the nature of its design, the ledger of accounting for Einsteinium is immutable. Furthermore, it shall be a deflationary currency for a period of 50 years, allowing enough time to reach critical mass. The transparency and security offered ensure that over time it will maintain its transactional value, provided that the system is well maintained and adaptable.
- **Unit of Account -** All cryptocurrencies, due to the nature of their volatile prices, are presently not ideal units of account. However, an upcoming feature of EMC2 will enable it to perform atomic swaps, or instantaneously convert into a different form such as Bitcoin, or even coins backed by fiat currency. Therefore, it can perform all of the necessary functions of accounting to ensure a safe and transparent record of exchange. Eventually, upon its maturity, the volatile nature of the value of each coin will decrease, particularly with the implementation of the 2% inflation rate.

Resources

Website: https://www.emc2.foundation
EMC2 Bitcointalk: https://bitcointalk.org/index.php?topic=494708.0
Twitter: https://twitter.com/einsteiniumcoin
Discord: https://discordapp.com/channels/384743579345485826/384750476089884682
Telegram: https://t.me/emc2_official
Telegram (KR): https://t.me/emc2_kr
EMC2 Reddit: https://www.reddit.com/r/einsteinium/
KakaoTalk: https://open.kakao.com/o/gABbPBhb
KR Wiki: http://wiki.hash.kr/index.php/아인스타이늄