

GENERAL TERMS OF OPERATION

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§ 1 General Principles; Scope of Application

- 1 The following General Terms of Operation ("GTO") apply to any use of the mining pools ("Pools") offered over the websites ("Websites") <https://ethermine.org>, <https://etc.ethermine.org>, <https://zcash.flypool.org>, <https://ravencoin.flypool.org>, <https://beam.flypool.org> and <https://ethpool.org>, concerning the mining of the cryptocurrencies "Ethereum", "Ethereum Classic", "Zcash", "Ravencoin", and "Beam". The pool operator is bitfly gmbh, Landstraßer Gürtel 9/12, 1030 Vienna, Austria (Commercial Register: Handelsgericht Wien, FN 472953 w) ("PO").
- 2 By accessing and using the pools, you confirm that you have read these GTO and accept and agree to be bound by its provisions. Any factual participation in the pools will constitute such acceptance. If you do not agree to abide by these GTO, you are not allowed to use the pool.
- 3 To access the pool, you enter your specific address associated with your wallet. The websites <https://ethpool.org>, <https://ethermine.org>, <https://etc.ethermine.org> refer to Ethereum respectively Ethereum Classic mining pools and require an Ethereum or Ethereum Classic address. The pools offered via <https://ravencoin.flypool.org>, <https://beam.flypool.org> and <https://zcash.flypool.org> refers to a the Ravencoin, Beam and Zcash mining pools requiring a wallet supporting Ravencoin, Beam and Zcash respectively. To use these pools, a mining software working with the operating system on your computer is necessary. Download links are available directly on the Websites.
- 4 In order to use the pools as defined below and operated via the Websites you must be at least sixteen (16) years old. By using the pools, you confirm to have reached the age of sixteen (16).

§ 2 Definitions

- 1 **Blocks & Transactions:** Transaction data is permanently recorded in files called blocks. They can be thought of as the individual pages of a city recorder's recordbook (where changes to title to real estate are recorded) or a stock transaction ledger. Blocks are organized into a linear sequence over time ("**Miner**" or "**Worker**") also known as the block chain). New transactions are constantly being processed by Miners (into new blocks which are added to the end of the chain and can never be changed or removed once accepted by the network. Each block contains, among other things, a record of some or all recent transactions, and a reference to the block that came immediately before it. It also contains an answer to a difficult-to-solve mathematical puzzle - the answer to which is unique to each block. New blocks cannot be submitted to the network without the correct answer - the process of "mining" is essentially the process of competing to be the next to find the answer that "solves" the current block. The mathematical problem in each block is extremely difficult to solve, but once a valid solution is found, it is very easy for the rest of the network to confirm that the solution is correct. There are multiple valid solutions for any given block - only one of the solutions needs to be found for the block to be

solved. Because there is a reward of brand new cryptocurrency units for solving each block, every block also contains a record of which address is entitled to receive the reward. Transactions are broadcast to the network by the sender, and all peers trying to solve blocks collect the transaction records and add them to the block they are working to solve. Miners get incentive to include transactions in their blocks because of attached transaction fees. The difficulty of the mathematical problem is automatically adjusted by the network, such that it targets a goal of solving an average of (X) blocks per time interval (details are specified in the respective consensus rules of a cryptocurrency). The network comes to a consensus and automatically increases (or decreases) the difficulty of generating blocks. Because each block contains a reference to the prior block, the collection of all blocks in existence can be said to form a chain. However, it's possible for the chain to have temporary splits - for example, if two Miners arrive at two different valid solutions for the same block at the same time, unbeknownst to one another. The peer-to-peer network is designed to resolve these splits within a short period of time, so that only one branch of the chain survives. The client accepts the "longest" chain of blocks as valid. The "length" of the entire block chain refers to the chain with the most combined difficulty, not the one with the most blocks. [Source: <https://en.bitcoin.it/wiki/Block>]

- 2 **Uncles** are orphaned blocks that contribute to the security of the main chain, but are not considered the canonical "truth" for that particular chain height. They only exist in Ethereum-based cryptocurrencies. For more information on Ethereum's uncle mechanism please review the relevant section of the Ethereum wiki under <https://eth.wiki/fundamentals/mining#mining-rewards> [Source: <http://ethereum.stackexchange.com/questions/34/what-is-an-uncle-ommer-block>]
- 3 **Block chain** is a decentralized and continually updated list of transactions occurring across a certain peer-to-peer network. Blocks of transactions are validated and linked together by specific methods of cryptography. Manipulating individual transaction records is hardly possible in this context. A blockchain provides a wide range of functionality. Besides establishing cryptocurrency and payment infrastructures, it can be used, for instance, to digitally sign documents (proving identity) or create verifiable records of business processes.
- 4 **Mining** is the process of adding transaction records to a cryptocurrencies public ledger of past transactions. This ledger of past transactions is called the block chain (see above 2.3) as it is a chain of blocks. The block chain serves to confirm transactions to the rest of the network as having taken place. Cryptocurrency nodes use the block chain to distinguish legitimate transactions from attempts to re-spend coins that have already been spent elsewhere. Mining is intentionally designed to be resource-intensive and difficult so that the number of blocks found each day by Miners remains steady. Individual blocks must contain a proof of work to be considered valid. This proof of work is verified by other nodes each time they receive a block. Ethereum uses the "ethash" proof-of-work function while Zcash uses the "equihash" algorithm. The primary purpose of mining is to allow nodes to reach a secure, tamper-resistant consensus. Mining is also the mechanism used to introduce new units of cryptocurrency into the system: Miners are paid any transaction fees as well as a "subsidy" of newly created

coins. These both serve the purpose of disseminating new coins in a decentralized manner as well as motivating people to provide security for the system. Mining is so called because it resembles the mining of other commodities: it requires exertion and it slowly makes new currency available at a rate that resembles the rate at which commodities like gold are mined from the ground. [Source: <https://en.bitcoin.it/wiki/Mining>] To ensure mining can be carried out reasonably, certain hardware demands are to be fulfilled; mining entails a high level of power consumption. The process of mining is conducted using specialized software available for different operating systems. Each cryptocurrency defines a unique mining reward scheme. For more information on the rewarding scheme employed by the Ethereum cryptocurrency please consult the Ethereum Yellow Paper under <https://github.com/ethereum/yellowpaper>; for more information on the Zcash rewarding scheme please consult the Zcash protocol specifications under <https://github.com/zcash/zips/blob/master/protocol/protocol.pdf>. For more information about the Ravencoin Blockchain and their rewarding scheme please consult the Ravencoin white paper under <https://ravencoin.org/assets/documents/Ravencoin.pdf>. Finally, for more information about the Beam protocol please consult <https://documentation.beam.mw>. More specifically, for information about mining and the distribution of Beam you can consult https://documentation.beam.mw/en/latest/rtd_pages/user_mining_beam.html.

- 5 **Mining pools** pursue the objective to solve blocks more quickly and split the rewards equally. Participants of a mining pool presenting a valid proof of work are awarded a "share". A share is a hash, smaller than a specified difficulty, but generally without value as only the hash smaller than the target value solving a block and determined by difficulty is of importance. Mining pools are available in a range of forms and arrangements as well as for different types of cryptocurrency. Depending on the mining pool, various payout schemes may be applied, whereby those of relevance will be outlined under § 4.
- 6 A **Share** is awarded by the mining pool to the clients who present a valid proof of work of the same type as the proof of work that is used for creating blocks, but of lesser difficulty, so that it requires less time on average to generate. [Source: https://en.bitcoin.it/wiki/Pooled_mining]
- 7 **Wallet** is the term to describe the digital environment to access and spend cryptocurrency. In an untechnical thinking, the units are "stored" within. A secure private key with a corresponding public key is necessary to sign and verify transactions. Wallets are associated with a specific address ("**Address**") and exist in various forms, particularly desktop, mobile, web and hardware wallets.
- 8 **Ethereum** is an open-source project establishing a decentralized platform running applications exactly as programmed. Downtime, censorship, fraud and third party interference are not possible according to the developers. Using a customized blockchain able to move values, Ethereum has an enormously wide application area and provides numerous options for developers. The platform facilitates the realization of so called smart contracts, allowing, for example, the automatic negotiation or enforcement of contracts. **Ether**, as the actual cryptocurrency, is a necessary element for operating Ethereum (payment for requested operations). It is also traded on cryptocurrency exchanges. **Ethereum Classic** is a split from the existing

cryptocurrency Ethereum and Ethereum Classic offer the same features. Both blockchains act individually.

- 9 **Zcash** ("ZEC") is a decentralized and open-source cryptocurrency with increased confidentiality. Despite payments are – as usual in connection with cryptocurrencies – published on a blockchain, the sender, recipient and amount of transactions are only visible to those people with the corresponding "view key" as these "shielded" transactions are specifically encrypted. In using advanced cryptographic technology, transactions can be verified without revealing additional information.

§ 3 Liability

- 1 Nothing in these GTO shall limit any liability for fraud or fraudulent misrepresentation as well as intentional or grossly negligent infliction of damage by the PO.
- 2 The PO is continually implementing security standards complying with the latest state-of-the-art technology. All operated servers located in the EU-28 and North America are distributed-denial-of-service (DDOS) protected to ensure an incessant availability of the pools and a payout process without unwanted interruptions. The pools are also designed to pay out rewards as soon as possible in order to keep the pool balance low.
- 3 Despite such protective mechanisms, the PO cannot fully guarantee that the Websites will never be subject to hacker attacks or similar problems. Therefore, the PO shall not be obliged to compensate any losses due to stolen pool balance or temporary unavailability of the pools. The PO explicitly reserves the right to shut down pools from time to time for maintenance reasons.
- 4 Furthermore, the PO shall not be liable for any damages of your hardware (computer and its components) or software (operating system, programs, stored data etc.) occurring while using the pools. The intensity of the mining tasks is highly demanding; hardware components may – exceptionally – be destroyed completely. As the hardware setup of each Worker is individually compiled, you must assess (and bear) the risk associated with such high electrical load by yourself.
- 5 Attacks on the system may also cause data loss. As far as sensitive data is collected (see § 5), the PO shall not be held responsible for any loss that cannot be reduced to security issues or other culpability by the PO.
- 6 Ethereum, Ethereum Classic, Ravencoin, Beam and Zcash are highly experimental crypto software. Damages or loss of cryptocurrency units arising from software errors therefore remain possible. As the PO has no influence on the underlying software, he shall not in any case be exposed to claims relating to such errors.

§ 4 Terms of Payment

- 1 As mining is an intensive task for the hardware of your computer (CPU, GPU), the process can cause high costs for electricity. The PO shall not be responsible for any such costs. The pools are conducted at the sole discretion of the user in type, extent and frequency. All expenses arising are to be borne by the Worker.
- 2 Depending on the offer of each website, payout schemes may differ:
 - 2.a <http://ethpool.org> is a predictable Ethereum solo mining pool and implements a solo mining payout scheme. Each submitted share will increase the credits of the Miner who submitted the share by the fixed

share difficulty of the pool. The Miner who accumulated the most credits will receive the reward of the next block that has been mined by the pool and his credits will be reset to his current credits minus the credits of the runner up Miner. "Uncles" are distributed randomly amongst all active miners on the pool. The credits of the Miner receiving the uncle reward will not be reset.

- 2.b <http://ethermine.org> is an Ethereum mining pool using the traditional Pay-Per-Last-N-Shares ("**PPLNS**") payout scheme. This reward system is round based, whereby one round has an arbitrary number (N) of minutes. When a block has been found by the pool, the block reward is credited according to the number and difficulty of the shares submitted during the last hour. Credited balances are payed out according to the pools payout scheme. The PO reserves the right to update the pools payout policy and to pay out unpaid balances for accounts at any time. The payout policy for this pool is available [here](#). Changes to the policy must be announced at least 14 days prior to their activation unless unforeseen technical issues arise.
 - 2.c <http://etc.ethermine.org> is an Ethereum Classic mining pool using the traditional PPLNS payout scheme. The payout scheme is working exactly in the same way as explained under b) above. The payout policy for this pool is available [here](#).
 - 2.d <http://zcash.flypool.org> is a Zcash mining pool using the traditional PPLNS payout scheme. The payout scheme is working exactly in the same way as explained under b) above. The payout policy for this pool is available [here](#).
 - 2.e <http://ravencoin.flypool.org> is a Ravencoin mining pool using the traditional PPLNS payout scheme. The payout scheme is working exactly in the same way as explained under b) above. The payout policy for this pool is available at our knowledge base [here](#).
 - 2.f <http://beam.flypool.org> is a Beam mining pool using the traditional PPLNS payout scheme. The payout scheme is working exactly in the same way as explained under b) above. The payout policy for this pool is available [here](#).
- 3 The pool fee to be collected by the PO amounts to a uniform 1% calculated from the total mining rewards as defined by the cryptocurrency consensus protocol.

§ 5 Severability Clause

In the event that any provision or any part of any provision set forth in these GTO shall be void or unenforceable for any reason whatsoever, then such provision shall be stricken and of no force and effect. However, unless such stricken provision goes to the essence of the consideration negotiated by the contracting parties, the remaining provisions of these GTO shall continue in full force and effect, and to the extent required, shall be modified to preserve their validity.

§ 6 Further Terms

- 6.1 So called botnets are strictly prohibited from participating in the mining pools. The term refers to computers used for mining, although their actual owners are unaware of it. Your computer may fall victim to a botnet due to insufficient security measures. It is hence recommended to pay utmost attention to adequate protection. The PO generally reserves the right to exclude Workers from using the pool without prior notice.

- 6.2 The PO may change these GTO if necessary. Your continued use of the pool will signify your acceptance to any adjustment of these terms. The fact that the text respectively content has been changed will be visibly announced on the Websites. You should read these GTO again on a regular basis.
- 6.3 These GTO are exclusively governed by and construed in accordance with Austrian law.
- 6.4 Disputes shall be submitted exclusively to the competent courts of Austria, as far as a choice of law is permitted.