Stashware Economy

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Version 0.0.1

1 Economy

The Stashware network uses a coin, the scarcity of which is enforced through the consensus mechanism of the stashware data structure. The coin's main unit is the SWR, with subunit stash, where 1 SWR = 1,000,000,000,000 stash.

1.1 Total supply and Consumption

- **Token name:** SWR.
- **Token subunit** stash.
- **Total supply:** about 60,000,000 SWR (all for mining).
- **Stage one (Mainnet phase-1):** This phase is about 15 days. During this phase, 20 nodes will be nominated and 8640 (576*15) blocks will be created and total reward will be approx. 11,000,000 SWR. Namely, for each block 1,300 SWR is given to the miners.
- **Stage two:** Mainnet phase-2 mining will be around 49,000,000 SWR within the following 20 years.

1.2 Block Generation Time

- 2.5 minute/blocks.
- 576 blocks/day.
- 210,240 blocks/year
- 840,960/ four years.

1.2.1 Block Reward

Block rewards and fee calculations can be summarized as follows:

- **Block Reward in the first 15 days:** Initially start with 1,300 SWR in the genesis block.
- **Block Reward after 15 days:** 40 SWR for each miners.
- **Halving:** Reward halving will be around every 4 years.
- **Total Rewards for miner:** Block reward + Transaction fee + Miners allowance. (40% Tx cost fee) is also distributed to 20 different validators.
- **Block Reward Depreciation:** The halving will be after every 840,960 block and will calculated according to the following non-linear function:

$$R_{inflation} = \frac{G_{total} \times 2^{-\frac{H-8641}{4\times576\times365}} \times ln2}{4 \times 576 \times 365} = \frac{G_{total} \times 2^{-\frac{H-8641}{840,960}} \times ln2}{840,960}$$

  where G_{total} is the current total supply and H is the current block height.

- **Official mining in the first year:** 40 SWR block rewards for all miners in the first year of official mining.

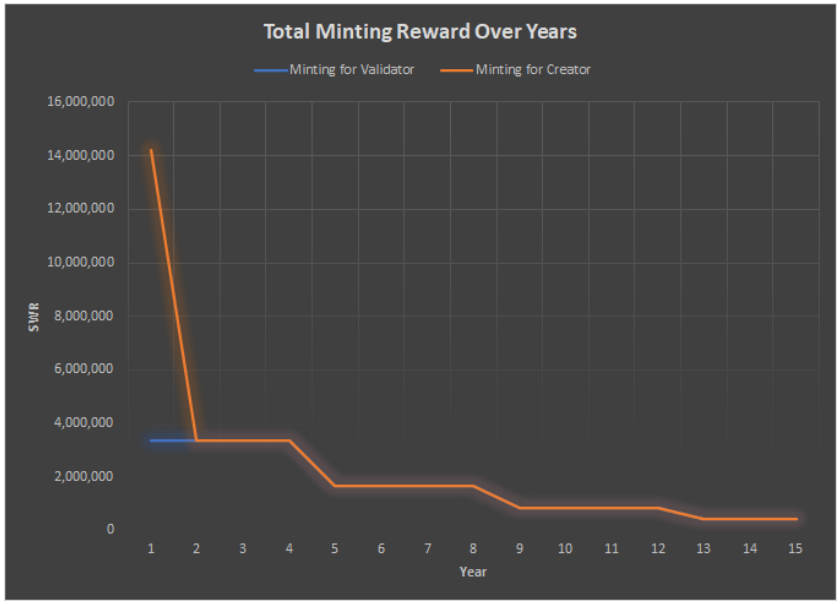

Figure 1: The graph of minting for creators.

1.3 Staking for Mining

Two cases occurs:

- **Case 1:** When the block height n is less than or equal to 8640 (which is around 15 days), no staking or lockup required.
- **Case 2:** When the block height (n) is between 8641 and 100,000 (which is around 173 days), miners need to stake stashes based on their block reward from the previous total network 5760 block produced (previous 10 days). If miner A's address mines X blocks in the previous 5760 blocks, then we regard the staking requirement per block mined as:

$$500 * \frac{log(n)}{log(n)+1}$$

  Then A needs to stake $y = 500 * \frac{log(n)}{log(n)+1} * x$. Staked stashes can be unstaked after the time of n+5760 block is produced.

- **Case 3:** When the block height (n) is greater to 100.000 (which is around 188 days), miners need to stake stashes based on their block reward from the previous total network 8640 block produced (previous 15 days). If miner A's address mines X blocks in the previous 8640 blocks, then we regard the staking requirement per block mined as:

$$800 * \frac{log(n)}{log(n)+1}$$

  Then A needs to stake $y = 800 * \frac{log(n)}{log(n)+1} * x$. Staked stashes can be unstaked after the time of n+11520 block is produced.

1.4 Storage Pricing on Stashware

Storage pricing and interest release, interest source model (to be determined). Storage pricing rivets USDT, lower prices over time (Moore's Law of Hardware).

Assume that 1SWR=1USD.

Starting from 2020, pGB = 0.002 USD/GB/year;

- Conservative annual depreciation is 0.995,

The limit cost for permanent storage: pGB = 0.4USD/GB =0.4SWR/GB

Stashware Storage Price	GB	SWR
Permanent Deposit Price	1	0.4
Permanent Withdrawal Price	1	0.4
Tx fee	1	20% (of total cost)

Table 1: Storage Fee on StashWare

Deposit and Withdrawal fee
= Permanent Deposit fee+Permanent Withdrawal fee+Tx fee
= 0.4 SWR + 0.4 SWR + 0.04 SWR = 0.84 SWR/GB

The lowest Tx fee should be 0.2 SWR, if receiver is a new address. Otherwise, the fee goes directly to the donation pool and the new address could not be successfully activated.

1.4.1 Miner's income

The miners income will be

Block reward+Transaction fee + Miners allowance

1.4.2 Extra Donation

There is also a concept of coordinating the donation pool, which will allocate stashes as interest to all miners.

Including

- Deposit and Withdrawal fee
- Address activation fee: 0.2 SWR for one address
- Block reward for inactive addresses [Mainnet phase-1]: $1,300$/block

(The new address requires 0.2 SWR activation. Blocks of inactive addresses will go directly to the donation pool;)

1.4.3 Miners' Allowance

When Block reward+Transaction fee < Content Storage fee of the Recall block

The donation pool will subsidize the miner which is called the miners' allowance

Miners' Allowance = Storage Rate * (Deposit and Withdrawal fee - Block reward + Transac fee)

Storage Rate = The recall block size/Total network storage computing power/current height