Filecoin Liquid Staking

STFIL

Protocol Whitepaper V1.4

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March 2023

Abstract: STFIL is a trustless liquidity protocol on FVM that's community-owned, decentralized, and lets users earn block rewards without locking assets or managing Storage Provider infrastructure.

Contents

1 Introduce

In the Filecoin network, pledge is a cornerstone in building a robust, stable, and user-friendly distributed storage network which can improve the overall service quality of the Filecoin network. So that Filecoin has the ability to challenge the centralized storage market. Pledged FIL can also compensate for the loss of data owners. Compared to other networks like Bitcoin, the PoSt consensus mechanism of Filecoin is critical to providing storage stability and requires Storage Providers to have more professional hardware, data center locations, operations engineers, and more upfront FIL investment, resulting in high barriers for Filecoin Storage Providers.

The STFIL liquid staking protocol is a solution to these disadvantages of pledge in Filecoin. STFIL Protocol is built on FVM and aims to be community-owned, decentralized, trustlless, and compatible with pledge in Filecoin. STFIL Protocol allows users to obtain block rewards without locking assets and maintaining Storage Provider infrastructure by allowing Storage Providers to obtain more FIL in the protocol pool for pledge. Storage Providers also have a responsibility to maintain their nodes carefully while still onboarding data and capacity to the network, thus successfully obtaining block rewards.

Compared to pledge, STFIL Protocol is a more flexible solution. STFIL users can enjoy staking rewards while holding liquidity in staked FIL assets (stFIL). The amount of FIL and stFIL staked in STFIL is fully transparent and auditable and managed by the private keys of a DAO multisig wallet, not controlled by any single party. Smart contracts are responsible for holding and transferring funds (including all staking and withdrawals). No one user can take user funds directly from the pool. The smart contracts will be completely open source for the public eye to analyze and be fully audited by the best audit teams in the industry.STFIL only charges a portion of the protocol lending interest as fees, which are regulated by the DAO.

STFIL Protocol will be managed by STFIL DAO, a decentralized autonomous organization. For a Storage Provider to obtain more loan in the STFIL pool, they must be approved by the STFIL DAO members. Through this mechanism, participants in the STFIL ecosystem have the right to vote on proposals to promote a diverse and self-sustaining ecosystem.

In the current crypto and DeFi industry, although Lido and Rocket Pool are telling the same story, they only serve the web3 world outside of Filecoin. On the eve of the release of the Filecoin Virtual Machine (FVM), STFIL Protocol was fully prepared, and has no competitors. Our business is also an indispensable part of the Filecoin ecosystem and will receive widespread attention.

1.1 Protocol User

STFIL transforms the centralized P2P lending strategy (direct lending relationship between lenders and borrowers) in the Filecoin network into a decentralized funding pool strategy. The STFIL protocol mainly attracts two types of user groups:

a. **Investors**：Token holders who want to earn income without directly participating in pledging via running a storage provider operation;

b. **Storage Providers**：Teams with high-quality hardware and operation and maintenance resources hope to access FIL for pledge collateral for onboarding data and capacity to the Filecoin Network；

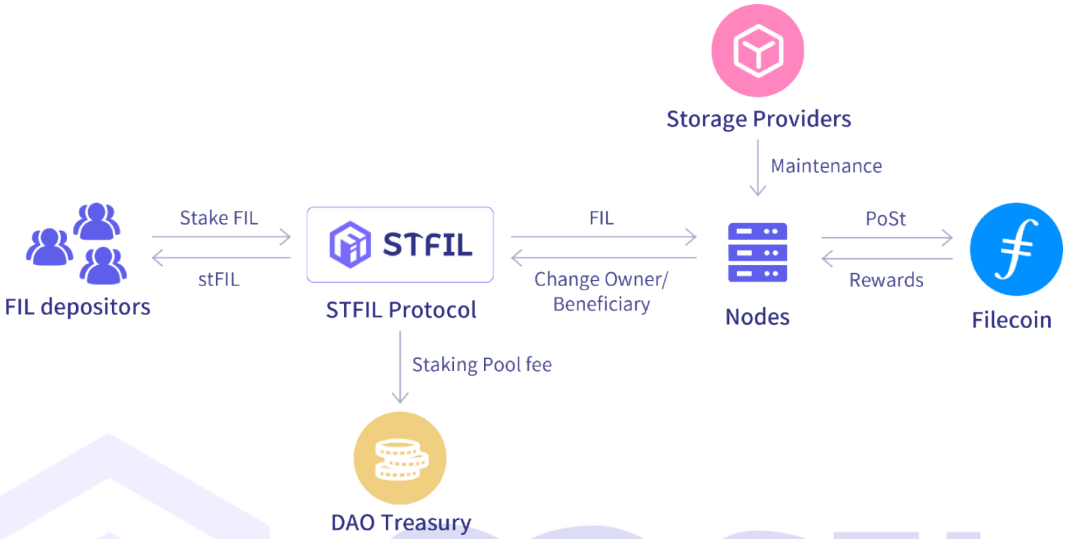
1.2 Target

- To be a community-owned, decentralized, and trustless liquidity collateralization protocol for Filecoin network；
- Allows users to earn staking rewards without fully locking up FIL and accommodates small token holders；
- Provides funding support for high-quality storage providers selected by DAO, thereby maintaining a more stable and robust Filecoin network；
- Offers stFIL tokens as building blocks for other applications and protocols(such as payment channels for paid storage or retrieval)；
- Provides new impetus for Filecoin DeFi ecosystem；
- Offers decentralized protocols for joint mining, semi-custodial mining, and full-asset mining；
- Reduces the risk of asset loss for each user due to software malfunctions or malicious software；

2 Working Mechanism

2.1 Protocol overview

The implementation of STFIL Protocol is as follows:



2.2 The basic formula of time

- T, Current timestamp,It is determined by ***block.timestamp*** in the blockchain
- T_t, The timestamp of the last update. Update whenever stake,unstake , borrow, repay, liquidate event occur.

- ΔT, Time difference
- T_{year}, Seconds in a year

$$\Delta T = T - T_t$$

$$T_{year}=31536000$$

$$\Delta T = \frac{\Delta T}{T_{year}}$$

2.3 Stake Tokenization

The STFIL Protocol will mint stFIL tokens, which are derivative tokens representing stake FIL; it allows holders to stake their FIL assets into smart contracts to mint a 1:1 stake token stFIL, This is a derivative token based on EIP-2612 (an extension of ERC-20). It represents the right to claim staked FIL. And stFIL does not need to be locked! After users hold stFIL, no matter where they are obtained from, stFIL will accumulate staking rewards.

In order to realize the above tokenization strategy, STFIL Protocol introduces the following concepts:

- U_t, Capital Utilization

  $\overline{R}_t$, The current overall average interest rate, more information can be obtained in 2.5.

  LR_t, The current liquidity rate. Function from aggregate loan rate and utilization:

$$LR_t = \overline{R}_t U_t$$

  LI_t, Liquid interest-bearing index. Indicates the accrued interest of the reserve fund during ΔT time interval, and is updated whenever stake.unstake, borrow, repay, and liquidate events occur.

$$LI_t = (LR_t \Delta T_{year} + 1) LI_{t-1}$$
$$LI_0 = 1 \times 10^{27} = 1ray$$

- NI_t, Standardized interest-bearing index. At time t, the reserve accumulated interest index:

$$NI_t = (LR_t \Delta T_{year} + 1) LI_{t-1}$$

At any moment, stFIL balance $B_t(x)$ of user x can be written as：

$$B_t(x) = SF_t(x) NI_t$$

Among them, $SF_t(x)$ represents the scaled factor of the user's share of the reserve pool.When users stake and unstake, it will lead to increase and decrease, which will lead to the minting and burning of SF_t:

- **Stake**：When a user stakes an amount m in the protocol, the scaled factor is updated as follows:

$$SF_t(x) = SF_{t-1}(x) + \frac{m}{NI_t}$$

- **Unstake**：When a user unstakes m in the protocol, his scaling factor is updated as follows:

$$SF_t(x) = SF_{t-1}(x) - \frac{m}{NI_t}$$

Users can exchange stFIL for FIL at any time as long as there is sufficient liquidity to cover the swap. In the case of market risks caused by the limited liquidity of FIL, stFIL's price

in the secondary market can still provide sufficient confidence to holders due to fluctuations in supply and demand.

stFIL can be used and traded like other ERC-20 tokens. Users can do anything they want with it, including holding, selling, trading, and lending. This provides users with higher capital efficiency and utility, as it allows holders to earn staking rewards while also being able to use stFIL in DeFi.

STFIL protocol provides loans to Storage Provider nodes for sector pledge using FIL from the liquidity pool. Storage Providers use a portion of the block rewards they receive to pay interest to stFIL holders. STFIL Protocol aggregates the penalties and losses of all nodes and amortizes each user equally, minimizing the impact on individual users. Penalties are first covered by the balance of node provided by Storage Providers, followed by the risk reserve fund of the STFIL, and finally by stFIL holders in the pool.

Currently, STFIL protocol is designed to accept a minimum of 1 FIL tokens for staking, with no maximum limit.

2.4 Storage Provider Onboarding

STFIL Protocol encourage storage providers with more professional hardware, specialized data center facilities, expert operation and maintenance engineers, and stable power equipment to actively participate to improve the overall network service quality, and jointly create a robust, stable, and user-friendly distributed storage network. Protocol allows anyone to join the decentralized liquidity staking network of storage providers and obtain a higher investment return rate compared to outside the protocol.

The protocol requires that storage providers must already run nodes before lending; assets from the current node should be used as collateral to obtain loan qualifications from the protocol. The protocol strictly restricts the borrowed FIL to only be used for sector pledge commitments. Any storage provider can join the agreement and qualify for a loan under this premise.

If the storage provider wants to obtain a higher loan amount, it needs to improve KYC and submit it to STFIL DAO for review. Audits include the following aspects:

- The operation and maintenance capabilities of storage providers, especially large storage providers.
- The node’s historical performance.
- Geographical and jurisdictional distribution;
- How keys and other security aspects are managed.
- ...

For security considerations, we divide the node roles into node owner and node operator. Node owner are responsible for sensitive node management operations such as delegating miner owner, undelegating miner owner, etc, while node operator are responsible for everyday operations such as extracting borrowing, repayments, withdrawal, etc.

Storage providers can obtain different maximum loan leverage by delegating Owner/Beneficiary addresses to the DAO.

To implement the above strategy, the STFIL protocol introduces the following concepts:

- L_{max}, Maximum loan leverage. Each node has a default maximum loan leverage based on their chosen role as Owner or Beneficiary to delegate, with a minimum value of 1, which represents a loan amount of 0. They can obtain a larger maximum loan leverage by submitting more detailed KYC and passing the STFIL DAO's audit.
- D_t, Total debt of Storage Provider at time t.
- DR_t, debt-to-equity ratio at time t.

$$DR_t = \frac{D_t}{PV_t}$$, PV_t represents the total assets of the node at time t.

- DR_{max}, Maximum debt-to-asset ratio.

$$DR_{max} = \frac{L_{max} - 1}{L_{max}}$$

When $DR_t >= DR_{max}$, storage providers' withdrawals will be restricted, and the generated earnings must first be used to repay the loan and interest. Withdrawals will only be permitted until $DR_t < DR_{max}$.

At any moment, the maximum loanable amount of a storage provider is:

$$BA_t = (PV_t - D_t)(L_{max} - 1) - D_t$$

In order to ensure that all loans obtained by storage providers are used for sector pledges, a safety buffer index is introduced. If the node of the storage provider has fixed assets PV_{fixed} (excluding the available balance), when the node obtains a loan amount of m:

$$SB_t = MAX(\frac{D_t}{L_{max} - 1} + D_t, PV_{fixed} + m, SB_{t-1} + m)$$

When $PV_t <= SB$,storage providers' withdrawals will be restricted, and the generated earnings must first be used to repay the loan and interest. Withdrawals will only be permitted until $PV_t > SB$.

Once the node receives the funding, storage provider is obligated to maintain the stability of the node. Therefore, the storage provider should first bear the fines and losses of the nodes due to accidents.

In order to avoid major accidents (such as the accidental loss of node storage) that may cause the storage provider's mortgage assets to be unable to bear all losses and lose the motivation to recover the remaining residual value (which may cause greater losses to the protocol), the protocol introduces the following measures to encourage storage providers to actively maintain the node at all times:

- DR_{LT}, Liquidation threshold of asset-liability ratio. Anytime:

$$DR_{LT} > DR_{max}$$

STFIL protocol intends to liquidate the debt of nodes with $DR_t > DR_{LT}$, and the STFIL protocol allows anyone to become a liquidator. The presence of liquidators helps to promote the stability of the STFIL protocol as they can ensure that the liquidated loans are properly handled and reduce the protocol's risk exposure. Users can increase their participation and earn profits by becoming liquidators.

The node's loss bearing is divided into two stages:

- Phase 1, all borne by the storage provider, covering a small amount of loss in the maintenance process of the node:

$$PV_{max\ loss} = PV_t - \frac{D_t}{DR_{LT}}$$

- Phase 2, the ratio of the total debt of the storage provider's node to the total asset of the node is always equal to DR_{LT}. Therefore, the storage provider still has assets belonging to themselves on the nodes at any time, which increases their willingness to recover the nodes. All losses will be shared in equal proportions, and the impairment of the pool will be borne by the risk reserve fund first (more information can be obtained in 2.5.4), followed by all users who hold stFIL. For each user, a small amount of loss is almost negligible.

In order to further reduce the risk of the pool, at the same time as the liquidation, the available balance of the storage provider will be used to repay the loan. Repay until $DR_t = DR_{max}$, then the maximum repayment amount is:

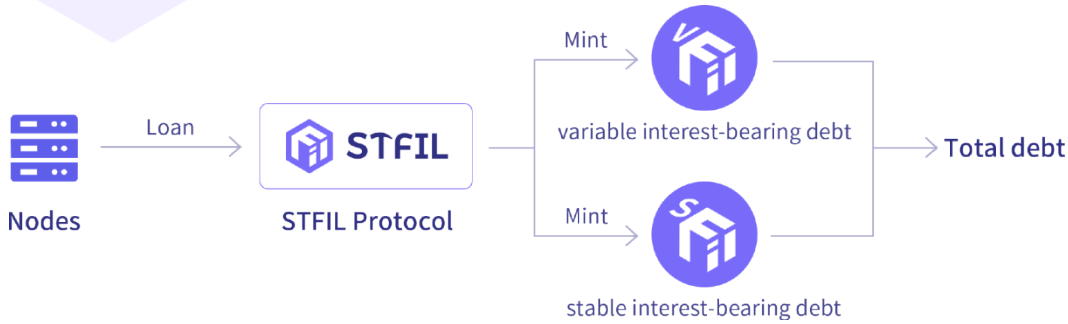
$$P_{max} = \frac{PV_t(DR_{LT} - DR_{max})}{1 - DR_{max}}$$

The storage provider can only redeem the pledged nodes and regain full ownership of the nodes after all debts have been repaid.

Currently, the STFIL protocol is designed to accept loans of at least 10 FIL tokens, with no upper limit.

2.5 Debt Tokenization

In the STFIL protocol, variable-rate debt and stable-rate debt are designed to meet the different needs of storage providers.



The storage provider's debt is represented in a tokenized manner, and the total debt of the storage provider at time t is defined as：

$$D_t = SD_t + VD_t,$$

where SD is the total debt of the stable-rate debt and VD is the total debt of the variable-rate debt.

The total supply of debt tokens, including the accruing debt per second, is defined as follows:

$$dS_t = \sum_{i \in users} SF_t(i),$$

$SF_t(i)$ represents the amount of loan taken by each storage provider i.

The overall average interest rate $\overline{R}_t$ is calculated as the weighted average of the variable loan rate VD_t and the stable loan rate SD_t:

$$\overline{R}_t = \begin{cases} 0, & D_t = 0 \\ \dfrac{VD_t VR_t + SD_t SR_t}{D_t}, & D_t > 0 \end{cases}$$

2.5.1 Variable-Interest-Rate Debt

The variable-rate model of STFIL can provide a more fair and transparent market pricing mechanism, enabling market participants to manage their funds more flexibly and gain greater profits from market fluctuations.

To implement this strategy, the following concepts have been introduced into the variable-rate debt of the STFIL protocol:

- VI_t, Interest-bearing index for cumulative variable-rate loan.

The interest accumulated on the variable-rate debt VB borrowed at rate VR within time ΔT is updated whenever there is a stake, unstake, borrow, repay , or liquidate event.

$$VI_t = (1 + \frac{VR_t}{T_{year}})^{\Delta T} \quad VI_{t-1}$$

- $VI(x)$, Interest-bearing index for a user's variable-rate loan.

The variable-rate loan index for a specific storage provider x , stored at the time of opening a variable loan position.

$$VI(x) = VI_{t(x)}$$

- VN_t , Standardized variable-rate (accruing) debt.

$$VN_t = (1 + \frac{VR_t}{T_{year}})^{\Delta T} \quad VI_{t-1}$$

$S_t(x)$ is the scaling factor for user x at time t , m is the transaction amount, and VN_t is the standardized variable-rate debt:

Borrows. When storage provider x borrows an amount m from the protocol, the scaling factor will be updated.

$$SF_t(x) = SF_{t-1}(x) + \frac{m}{VN_t}$$

Repays. When storage provider x repays or defaults on an amount m , the scaling factor will be updated.

$$SF_t(x) = SF_{t-1}(x) - \frac{m}{VN_t}$$

At any given moment, the total variable-rate debt balance for storage provider x can be expressed as:

$$VD(x) = S(x)VD_t$$

2.5.2 Stable-Interest-Rate Debt

STFIL also offers a stable-interest-rate model. The interest rate in this model remains fixed over a fixed borrowing period and is not affected by market supply and demand. The stable-interest-rate model is usually suitable for storage providers who want to obtain

predictable returns over a specific period of time. For example, storage providers who want to pay fixed costs over a certain period of time.

It should be noted that since the stable-interest-rate does not change with market fluctuations during the fixed borrowing period, the fixed interest rate is always higher than the variable-interest-rate at any time. Additionally, the stable-interest-rate may cause market imbalance because it cannot be adjusted according to market supply and demand.

Overall, STFIL's stable-interest-rate model can provide more stable returns, but may limit market flexibility in some cases. Storage providers should choose the appropriate interest rate model according to their own needs.

For the stable-interest-rate model, the following concepts are introduced:

- $SB(x)$, The total amount of storage provider x's stable rate loan.

  The total amount of i stable rate loans for the same storage provider x:

$$SB(x) = \sum_{i} SB_i(x)$$

- $\overline{SR}(x)$, Weighted average of storage provider x's stable-interest-rate.

  The total amount of i stable loans and rates for the same storage provider x is calculated as :

$$\overline{SR}(x) = \sum_{i} \frac{SB_i(x)SD_i(x)}{SD_i(x)}$$

At any time, the total stable interest rate debt balance for storage provider x can be written as:

$$SD(x) = SB(x)(1 + \frac{\overline{SR}(x)}{T_{year}})^{\Delta T}$$

Overall stable-interest-rate.$\overline{SR_t}$:

- **Brorrows.** When initiating a stable loan with a loan amount of SB_{new} at an interest rate of SR_t:

$$\overline{SR_t} = \frac{SD_t\overline{SR_{t-1}} + SB_{new}SR_t}{SD_t + SB_{new}}$$

- **Repays**. When the storage provider x repays a stable loan with an amount of $SB_i(x)$ (with interest rate of $SR_i(x)$):

$$\overline{SR_t} = \begin{cases} 0, & SD_t - SB(x) = 0 \\ \frac{SD_t\overline{SR_t} + SB(x)SR(x)}{SD_t - SB(x)}, & SD_t - SB(x) > 0 \end{cases}$$

2.5.3 Interest Rate Strategy

In the STFIL ,the interest rate model can make STFIL users' stake/loan interest change with market supply and demand. When the demand for loans increases, the stake interest rate and loan interest will rise to encourage new users to participate in the stake; when the demand for loans decreases , the stake interest rate and loan interest will encourage Storage Providers actively borrowing for pledge.

The crucial indicator determining changes in interest rates is the utilization rate U_t . When the utilization rate reaches a predetermined optimal utilization rate, the loan interest rates will begin to rise exponentially when borrowing again. High interest rates will attract more users to stake and storage providers to repay loans, which effectively avoiding liquidity problems that could lead to situations where users are unable to redeem FIL in a timely manner.

In the interest model of the protocol, we introduce the following concept:

- R_{max}^{APR}, Maximum Loan rate. It is also the rate when $U_t = 1$. At this time,the total block rewards storage providers obtain are used solely to pay off loan interest, which means storage providers never experience negative yields at any point. The value of R_{max}^{APR} is determined by the current block rewards distributed by Filecoin and the overall network collateral：

$$R_{max}^{APR} = \frac{M_t \times N \times 2880 \times 365}{TotalPledgeCollateral}$$

M_t represent the block rewards at time t ; N represents the average number block of per Tipsets over a period of time .

$$R_{max}^{APY} = T_{year}(\sqrt[T_{year}]{(1 + R_{max}^{APR})} - 1)$$

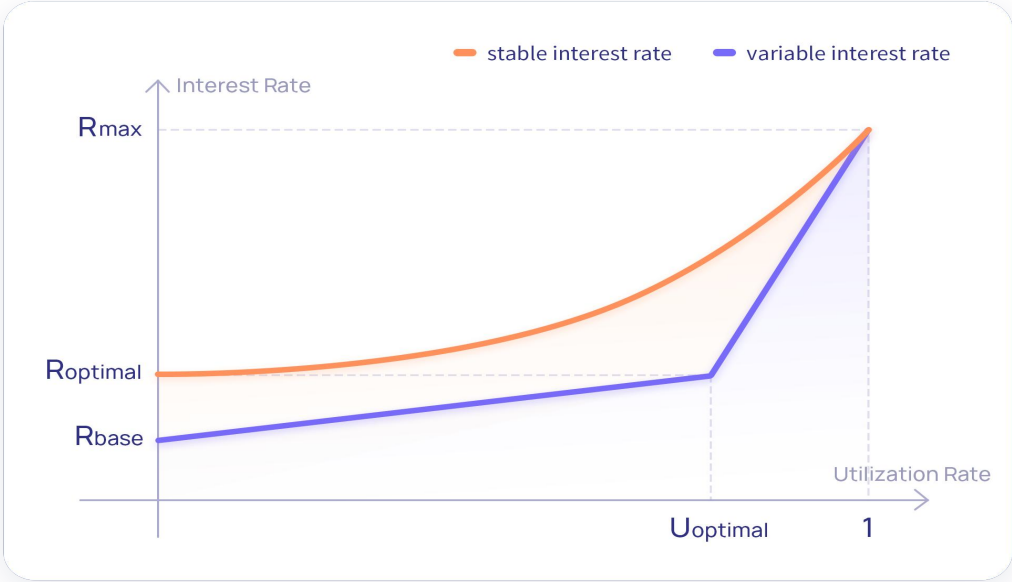
- $U_{optimal}$, Optimum utilization of funds。 Utilization targeted at asset reserves. When utilization exceeds that, the loan interest rate will go up dramatically.
- $R_{optimal}$,Optimum loan interest rate。 It is the interest rate when $U_t = U_{optimal}$.
- R_{base},Base loan interest rate. Indicates the loan interest rate when $U_t = 0$.
- VR_t ,variable loan interest rate at time t .

$$VR_t = \begin{cases} \dfrac{R_{optimal}}{U_{optimal}} U_t & , U_t < U_{optimal} \\ R_{max} - \dfrac{R_{max} - R_{optimal}}{1 - U_{optimal}} (1 - U_t), & U_t \geq U_{optimal} \end{cases}$$

when $U_t < U_{optimal}$, the changes of interest rate is determined by both $U_{optimal}$ and $R_{optimal}$ .At this time, the slope of the interest rate is low and the growth rate is relatively slow. When $U_t \geq U_{optimal}$, At this time, the slope of the interest rate is very high, which will make the interest rate quickly approach R_{max} .

- SR_t ,Stable loan interest rate.The one-time maximum loan amount is 20% of the current available liquidity. The stable rate is a Bezier curve with 4 control points. When the utilization rate is low, the stable interest rate is close to $R_{optimal}$, which can attract SP loans faster and reduce the interest rate depreciation of the utilization rate to the stakers.

$$SR_t = R_{optimal}(1 - U_t)^3 + 3R_{optimal}(1 - U_t)^2 U_t + 3R_{optimal}(1 - U_t)U_t^2 + R_{max}U_t^3$$



2.5.4 Risk reserve fund

Risk reserves is created to solve potential fund risk problems. The Risk reserves account cannot withdraw and only accepts collections from stFIL. Anyone can provide funds support for Risk reserves, and STFIL DAO will transfer part of service fee to the Risk reserves account.

Risk reserves address: ***0xff0000000000000000000000000000000000000063***

Functions and guarantees of STFIL Risk Reserves:

- **Risk management function:**

Risk reserves can be used to deal with unpredictable events or borrower defaults. This helps to ensure the controllability of the overall risk of the liquidity staking pool and reduce the risks faced by investors.

- **Priority to bear asset losses:**

When stFIL holders in the STFIL pool face asset losses, the risk fund can give priority to bearing these losses, avoiding situations of runs.

- **Enhance investor confidence:**

By setting up Risk Reserves accounts, the STFIL protocol can provide investors with a safer and more reliable investment environment and enhance their confidence.

In general, risk reserve fund plays an important role in the STFIL protocol. It provides an important risk management tool that can help protect investors' funds, reduce the possibility of risk problems, and enhance investor confidence.

2.6 Trustless

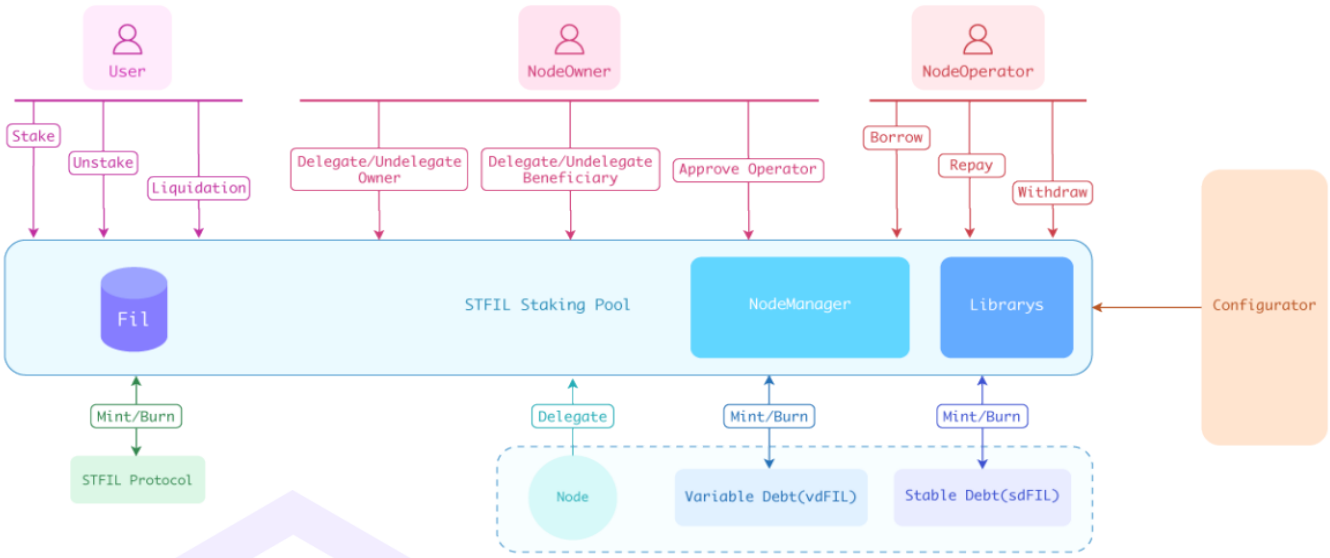
Smart contracts are responsible for holding and transferring funds (including all staking and withdrawals). No one user can take user funds directly from the pool. The smart contracts will be completely open source for the public eye to analyze and be fully audited by the best audit teams in the industry.

We will disclose all borrowing and lending activities of storage providers, as well as the maintenance status of storage provider nodes for everyone to monitor.

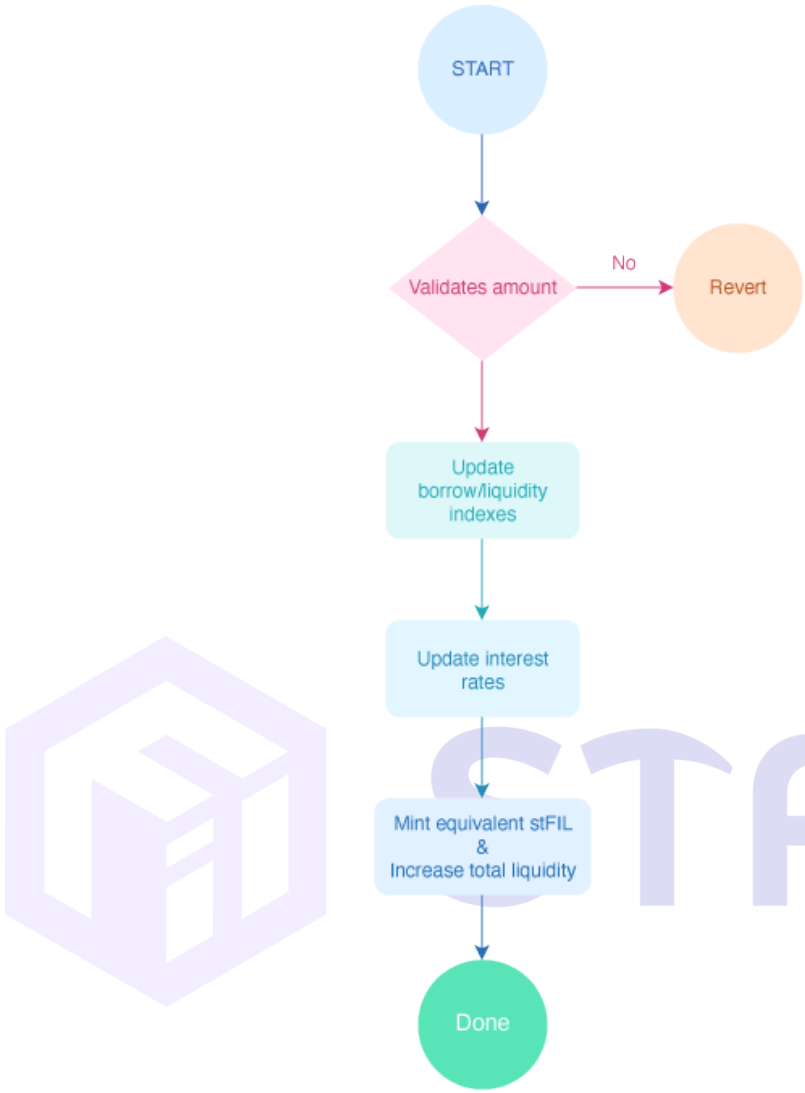
We will also disclose information such as the supply, circulation, and user holdings of stFIL for everyone to supervise.

3 Protocol Architecture

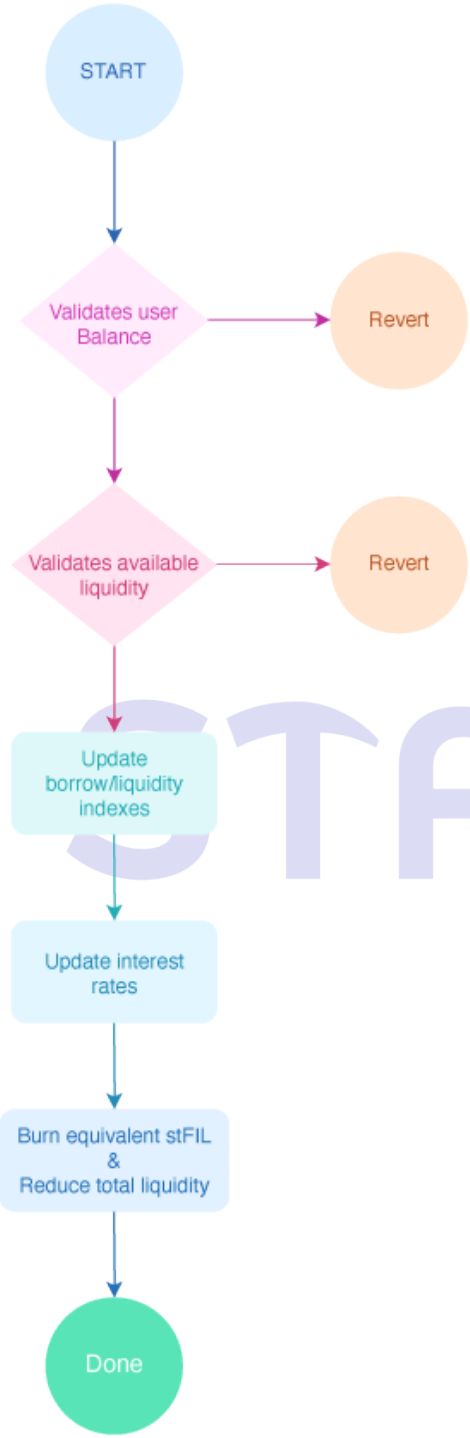
3.1 Architecture Diagram of STFIL Protocol：



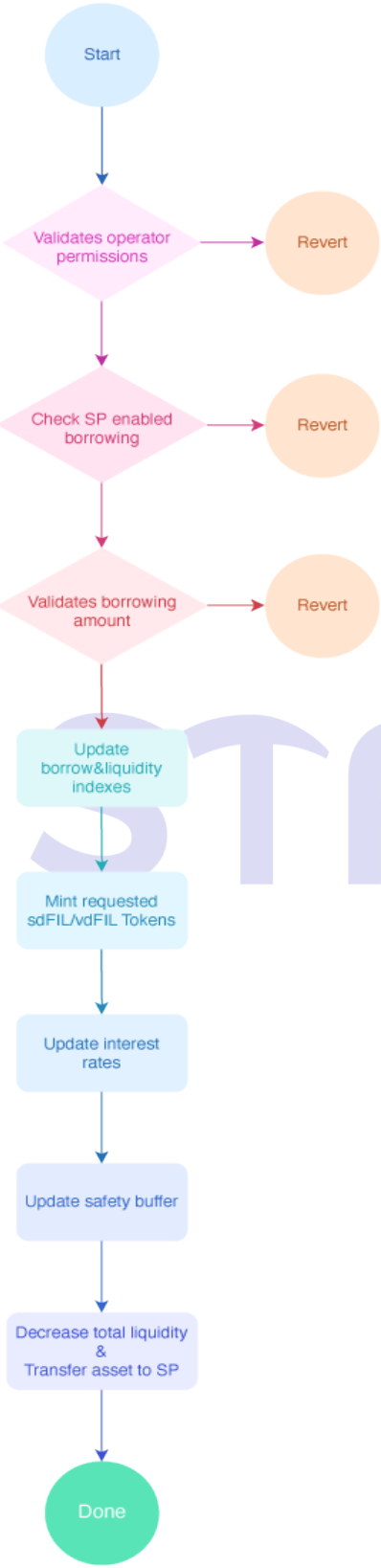
3.2 Staking Process



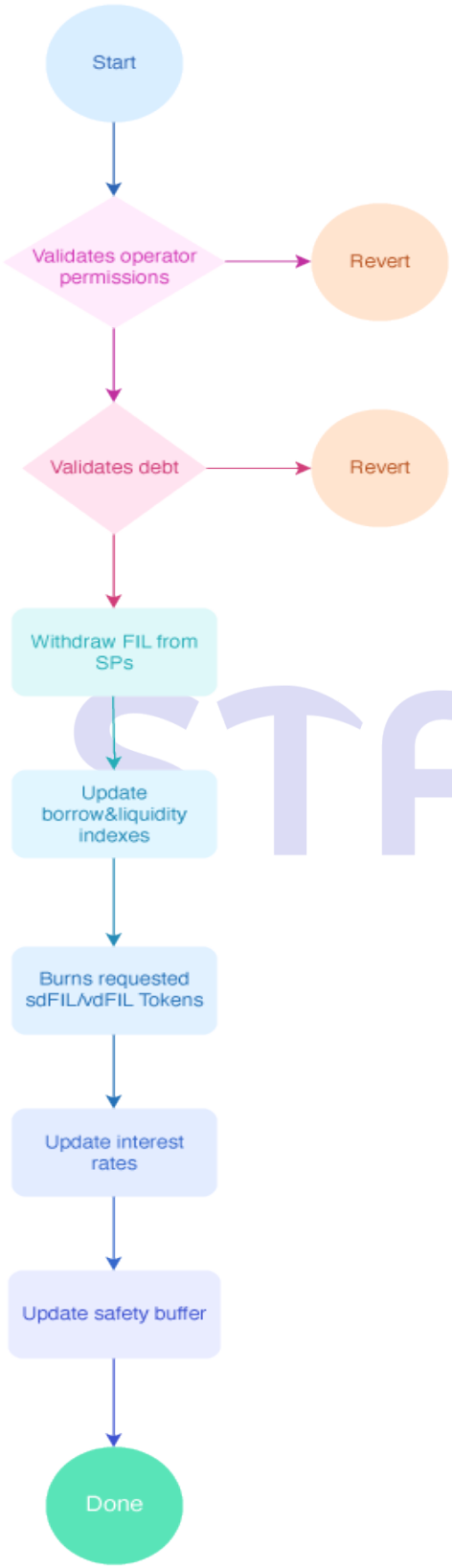
3.3 Unstaking Process



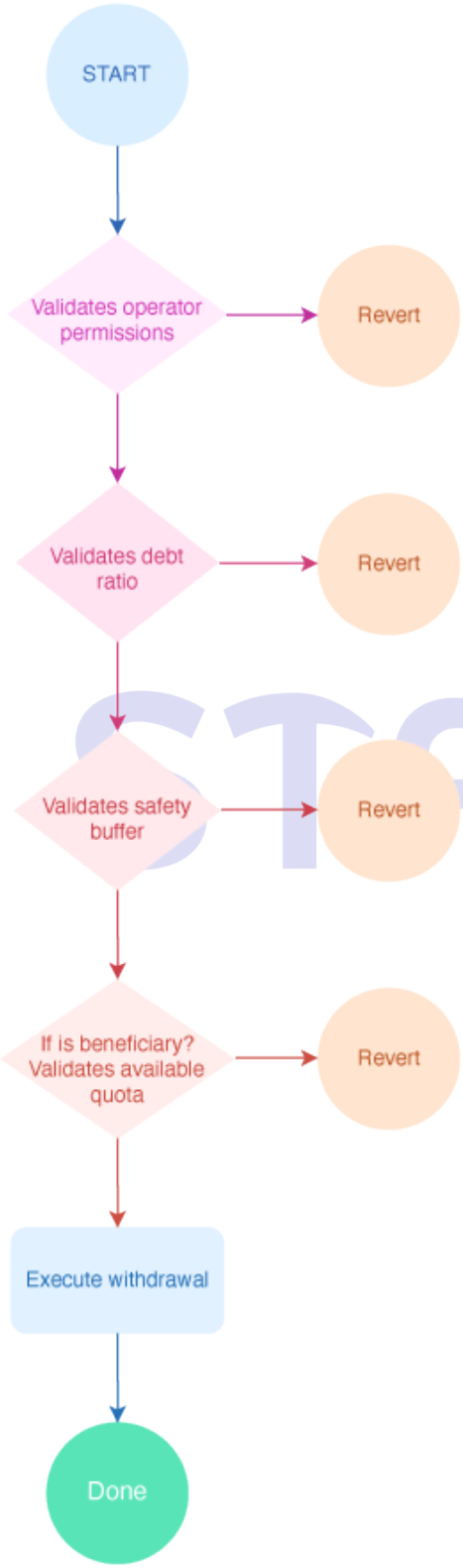
3.4 Borrowing Process



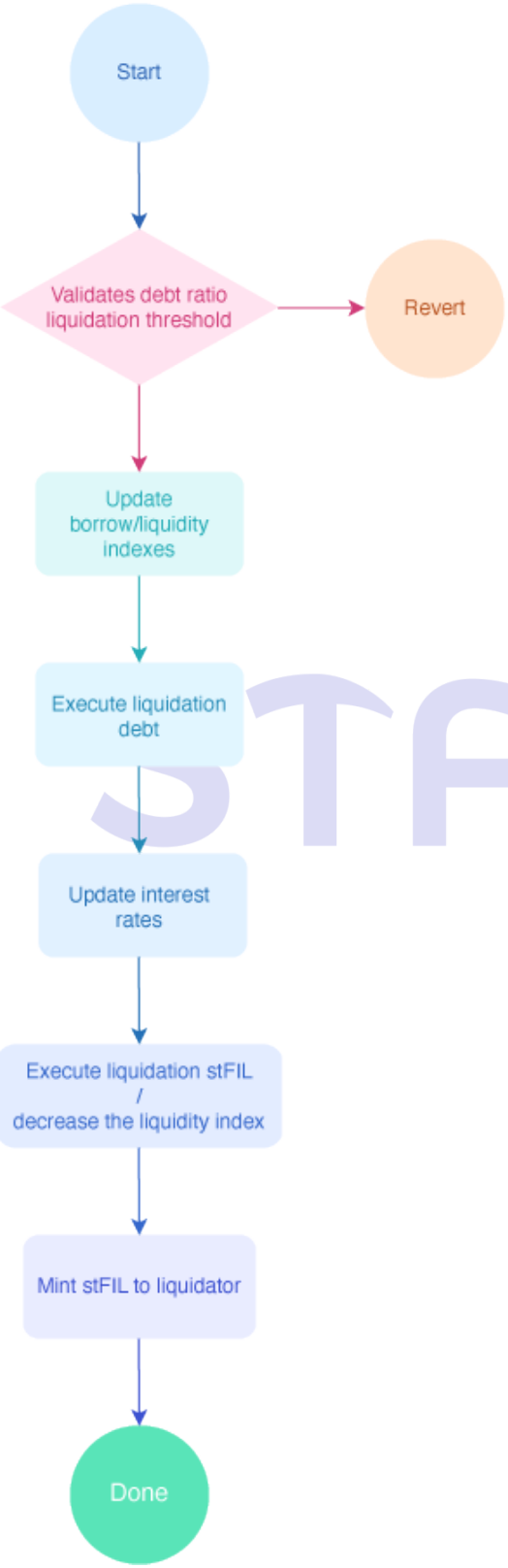
3.5 Repayment Process



3.6 Withdrawal Process



3.7 Liquidation Process



4 DeFi

With the release of FVM and the improvement of the ecosystem tools, more and more DeFi applications will be launched in the Filecoin ecosystem. DeFi will bring more financial usability to Filecoin, promote the development of a decentralized market for Filecoin, attract more investors, and create a new market fervor.

stFIL is a collateralized token backed by fixed assets, with rare relative stability compared to FIL. It can be used as a collateralized token throughout the entire DeFi ecosystem without any lock-up requirements. If an application is compatible with stFIL, it can not only be compatible with and promote each other's ecosystem fervor but also receive mining rewards from the non-liquid portion.

Holders of stFIL can send it to decentralized exchanges, and participate in trading pools, and receive transaction fees and DAO incentives.

5 Risk

5.1 Smart Contract Security

The security of the STFIL DAO has the highest priority in the STFIL Protocol. Users should investigate all the risks involved in the STFIL protocol before using the STFIL . It is undeniable that any project carries risks, including the potential for vulnerabilities or data security issues that could result in the complete failure of STFIL and its components.

5.2 DAO Private Key Management Risk

All STFIL DAO tokens are held in a distributed management account supported by multi-sign address. The threshold scheme is more secure than a single key controlled by a custodian. However, there is still a non-zero probability of failure. If at least (n-m+1) signers lose their key shares or are hacked, the funds may be locked. If m or more keys are compromised, the funds may be stolen (after transfer unlocking).

5.3 Bug Bounty Program

The security of the STFIL DAO system is paramount to the STFIL protocol. However, even with rigorous auditing, there is still a possibility of vulnerabilities given the constantly evolving ecosystem. That is why we have implemented a bounty program to identify errors and vulnerabilities in the protocol infrastructure and smart contracts. We will reward any organization or individual who helps us make the system as robust as possible.

5.3.1 Problem Severity Classification and Associated Rewards

To be eligible for a reward, submitted issues must meet the minimum severity criteria as described below. Approved submissions will be rewarded with stFIL tokens based on the severity category of the issue:

- **Low**

Up to $500 - issues that may cause user dissatisfaction or minor technical malfunctions.

- **Medium**

Up to $2,500 - issues that may result in minor losses of less than 0.1% of the protocol's funds, disrupt the protocol's state, or cause significant user dissatisfaction or moderate technical malfunctions.

- **High**

Up to $5,000 - issues that may result in immediate losses of 0.1% < X <10% of the protocol's funds or seriously disrupt the protocol's state.

- **Critical**

Up to $10,000 - issues that may result in immediate losses of 10% or more of the protocol's funds or permanently damage the protocol's state.

5.3.2 Rule

The reward will vary depending on the severity of the issue. Additionally, you can increase the reward by providing high-quality information in the following areas: problem description, instructions for reproducing the issue, and a solution (optional).

- If you want to add more information about the reported issue, you can create a new submission that references the initial one.
- Repeated reports of known issues will not be eligible for rewards. The first submission will receive the reward, so please report the issue promptly.
- The specifics of the reward for each event will be determined by STFIL DAO. The terms and conditions of the bug bounty program are at the sole discretion of STFIL Finance.
- The terms and conditions of the bug bounty program may change over time.
- Any interference with the protocol or client/platform services while an issue is still active, whether accidental or not, will invalidate the submission and disqualify it from receiving a reward.
- Public disclosure of the bug will result in the disqualification of the submission. Please read and adhere to the responsible disclosure policy below, or your report may not be eligible for a reward.

5.3.3 Disclosure policy

If you discover a vulnerability, please make sure to follow all of the following steps:

- Write a detailed and accurate problem report as soon as possible, then send it to: security@stfil.io.
- Do not disclose any information about the issue to anyone outside the team.
- Do not exploit the issue for personal gain.
- Do not attack our system or protocol.

Once we receive your report, we promise to do the following:

- Respond to your report as quickly as possible.
- Keep your report strictly confidential.
- Provide you with the latest status of your submission and the solution to the reported problem.
- Unless you have other preferences, you will be named the successful bounty hunter of the issue.
- Provide you with rewards to thank you for helping us make STFIL as secure as possible!

6 Disclaimer

The information in this whitepaper may be adjusted accordingly as the project progresses. STFIL Dao will release the updated content to the public by publishing announcements on the website or publishing a new version of the whitepaper. Participants shall obtain the latest version of the whitepaper timely and adjust their decisions based on the updated content. This whitepaper is only a document that introduces the project and does not serve as a guidance on investment. STFIL Dao will not bear the user's loss caused by the content of this whitepaper. STFIL Dao has clearly described possible risks to users. Once users participate, it means that they have confirmed their understanding and approval of the various terms and conditions in the detailed rules of this whitepaper and accepted the potential risks of the platform and to bear the risk themselves.