

InterFi Interoperable Protocol

— Make DeFi as a Service by DAPI

V1.0

www.interfi.org

March 2021

content

1 Introduction.....	1
2 Asset DAPI	2
2.1 Lock/Unlock	2
2.2 Freeze/Unfreeze	3
2.3 Liquidate	3
2.4 UpdateUserAssets.....	3
2.5 GetUserAssets	3
3 Stablecoin DAPI	3
3.1 Mint/Burn.....	3
4 Credit DAPI.....	4
4.1 UpdateUserCredit	4
4.2 GetUserCredit.....	5
4.3 GetUserCreditDetails.....	5
5 Farm DAPI	5
5.1 Deposit/Withdraw.....	5
6 Service Registration and Permission Management	5
6.1 InterFi Permission Management	5
6.2 Project Parties' Permission Management	6
7 Conclusion	6
Appendix.....	7

1 Introduction

Currently, there are still many problems in the DeFi market, such as the islands of applications, the lack of on-chain credit systems, dearth of a more universal decentralized stablecoin.

Islands of Applications

One of the biggest advantages of DeFi over traditional finance is its composability. Developers can work efficiently based on the established protocols like building Lego and leverage their existing user base. However, the composability of DeFi comes with many inconveniences and systemic risks. This is because every application is designed with a focus on inside functionality and risk control, without much consideration for combination with other applications. Most of the staking-based DeFi projects generate a type of receipt token as the receipt, such as Aave's aToken, Compound's cToken, Uniswap's LP token, etc. However, the majority of the receipt tokens cannot be freely used in other applications.

Lack of On-chain User Credit

Although we are in a very innovative and open-financial era, the token lending market still somehow abides by the old-fashioned pawn-house-alike collateral pattern. Also, over-collateralization is required for token lending, which gives rise to low capital utilization efficiency. If user credit can be shared across different DeFi projects, it would be able to build a commonly acknowledged on-chain user credit without KYC.

Dearth of A Universal Stablecoin

Stablecoin serves as a bridge between the crypto world and the real world, and as more and more individuals and institutions enter the market, the size of the stablecoin market is booming. Although stablecoins like USDT and TUSD are soft-pegged to the US dollar, there are risks such as centralized management, opaque accounting information, inability to timely respond to market fluctuations, and a series of policies and regulations. In addition to a relatively stable price, a true stablecoin should be backed by a transparent and decentralized entity, rather than a bank or trust. Maker allows users to leverage digital assets as collateral, making DAI being the third commonly used stablecoin in the market. But DAI currently only accepts collateral Ethereum-based assets, resulting in its limited overall scale and usage scenarios. Recently, the rapid growth of the DeFi market brings higher demands for stablecoins. However, the increasing fees charged by Ethereum force many projects to migrate to other chains. At this point, we urgently need a universal stablecoin that can circulate among different chains with the feature of easy to use and interact with, as well as the adaptable scale to the market demand.

All the above problems lead to the current situation of over-collateralization in the DeFi market: serious fragmentation of capital pool, difficult interaction, cumbersome process, and extremely low efficiency of capital utilization, which are a huge waste of resources.

InterFi is committed to enabling resource interoperability among DeFi applications, and building a series of infrastructure to speed up the development of DeFi. InterFi uses standardized DAPI to turn every DeFi application into a business service. Any application can use these services to build its product, which can greatly shorten the product development cycle, improve development efficiency and bring a brand-new user experience. Besides, through the combination of different services, applications can communicate with each other more conveniently, explore more new functions, and bring users more different ways of playing.

This paper mainly describes InterFi Interoperable Protocol, which provides a series of infrastructures including service interface standardization, service registration and permission management, as well as some basic services. Currently, there are four types of basic service standard DAPIs in InterFi:

- Asset DAPI
- Stablecoin DAPI
- Credit DAPI
- Farm DAPI

Interfi will also provide more basic services in the future.

2 Asset DAPI

In the current DeFi market, almost all the applications are aimed at the user's assets, that is, hoping users to deposit the asset in their apps. In the case of lending, users have to send the excess token to the lending platform to lend another asset. Just like a mortgage loan, one must transfer the use right and property right of the house to the bank to borrow money, which is pretty inefficient.

InterFi is building up a new way to use funds with the lower cost of handling capital, less unnecessary receipt tokens, and separation of the use right and property right of funds, to create a more efficient capital market.

2.1 Lock/Unlock

Asset locked/unlocked. The locked asset can still be used in the project party's platform under certain rules. The project party shall ensure that the use of locked assets cannot change the asset type and quantity, and will not affect the liquidation process.

For instance, in a SWAP that provides single sided liquidity, locked ETH can be switched from TokenA/ETH pool to TokenB/ETH pool to seek higher returns. Meanwhile, it can also keep the locked state in InterFi, and use other functions to achieve more effective use of funds and leverage the effect of returns amplification.

2.2 Freeze/Unfreeze

Assets frozen/unfrozen. Different from asset lock, the frozen assets cannot be operated by users, but they still are active in the business of the application. Swap's LP token, for example, is still providing liquidity and users can profit from it, but they cannot use the tokens.

2.3 Liquidate

Liquidate interface. When a user in some applications, such as a lending platform, freezes assets in some other applications, the liquidator can call this interface to liquidate the frozen or locked assets if the position is at risk.

2.4 UpdateUserAssets

Updating user's assets. The Project party can call this interface to update the user's assets in its application. InterFi will summarize the user's total assets in the InterFi ecosystem based on information provided by individual project parties.

2.5 GetUserAssets

Get user's assets situation in the InterFi ecosystem.

3 Stablecoin DAPI

Stablecoins are the holy grail of the cryptocurrency world, which turns volatile assets into stable assets that are easier to circulate and use. DAI is now the most popular decentralized stablecoin, but for now, DAI is mainly involved in token collateral to generate DAI and is hard to interact with other applications. Also, DAI will not expand with the demand of users for stablecoins, but with the demand for leverage.

InterFi is building a new stablecoin FAI with a self-regulating and low mint rate or even negative mint rate. It also provides a set of standard stablecoin DAPI interfaces for other applications. Users can directly freeze or lock assets in other applications to mint stablecoin FAI, which makes it easy to combine other features in the application.

3.1 Mint/Burn

Mint/burn of stablecoin FAI. The project party needs to provide information about the user's position for invocation, including the account address, freeze/lock token, freeze/lock/unfreeze/unlock amount, mint/burn amount, etc.

For the project side, a combination of the Mint/Burn interface and asset DAPI can be used to

provide users with stablecoin minting capabilities.

< FAI stablecoin protocol will be published in the future >

4 Credit DAPI

Credit is the cornerstone of the business and social activities, of which the form has been evolving since ancient times. Due to the lack of an effective on-chain credit system, many businesses of traditional finance are difficult to be carried out on the chain, or can only be done through over-collateralization. Taking Synthetix as an example, to prevent asset price fluctuation risk on both sides, the average collateralization ratio even exceeds 700%, while these collateralized tokens are left idle doing nothing.

In the blockchain space, users use the functions provided by the on-chain applications by sending transactions, and these on-chain data automatically form the credit for each account. InterFi calculates the user's credit with the **ICS**(InterFi Credit Score) model based on the user information provided by each application. An application can in turn use the on-chain credit to build its DeFi application. For example, a lending platform could lower the collateral rate of a user based on his or her credit, or authorize a portion of unsecured loans.

The ICS model performs comprehensive evaluation by five parts:

- Economic Activities (30%): the involvement of economic activities on the chain, including the investment of assets, contribution to the platform, activity and so forth.
- Debt Burden (30%): the leverage of the individual, the more debt, the lower the score.
- Performance Capacity (30%): the credit situation of repaying various loans.
- External Identity (7%): the credit situation of external platforms. We will consider cooperating with the more mature ID schemes in the future.
- Social Networking (3%): calculating the influence and importance of the address through the model based on other transaction-related addresses. As more users and applications are connected, this part will be included.

The total score is 0-1000, of which 0-400 is poor credit, 400-700 is good and 700-1000 is excellent.

Please have a look at the appendix for specific evaluation indexes.

4.1 UpdateUserCredit

The project party can call this interface to update information related to the user's credit evaluation, including on-chain activity, debt status, performance history, and platform contribution. This part of the information is used to calculate the user's credit.

4.2 GetUserCredit

Get user credit in the InterFi ecosystem.

4.3 GetUserCreditDetails

Get the details of user's ICS details in the InterFi ecosystem, which include economic activities, debt burden, performance capacity, external identity and social networking information.

5 Farm DAPI

Due to the popularity of over-collateralization and liquidity mining, the fund utilization in the DeFi market has been very low. For instance, CDPs holders in MakerDAO, actually suffer much higher collateralization ratios than the minimum one required by the system, to avoid liquidation. The average collateralization ratio is about 300%, which implies the asset efficiency of the entire Maker system is extremely low. If these assets can be utilized efficiently, a much more impressive rate of return could be expected. I.e. on lending platforms, pool utilization rate would soar sharply upon any tiny increases of the loan demand, due to locked assets insufficiency. This would cause lending rate surges far beyond the normal level. The interest rate difference between platforms provides a profit margin for arbitrageurs but, on the other hand, could cause great losses of interests to the lender. If funds can be allocated from a well-funded source, such as swap, the lender will be able to avoid this loss and IP providers of the swap can also gain additional benefits.

With the help of the built-in scheduling management protocol, InterFi can dynamically transfer funds out, thus opening up the channel of funds among applications and allowing funds to flow to where they are more needed, which maximizes the overall utilization of funds and also provides double benefits for users.

5.1 Deposit/Withdraw

Deposits/withdrawals. Users or project sides can call this interface to deposit free or illiquid assets into the system to earn revenue and withdraw them at any time.

< Allocation protocol will be published in the future >

6 Service Registration and Permission Management

It consists of two types of permission management, namely the InterFi side and the project party.

6.1 InterFi Permission Management

It refers to the management of project parties by InterFi, which can only be changed by the InterFi DAO. It includes the following items:

- Management of project parties' information, including the registration, change, and deletion of the project party. Each project party connected to InterFi needs to provide the basic information, including the project party address, revenue address, administrator address, list of asset management address, etc.
- Services and permission management. Service providers can register services and configure permissions through this interface. When an address accesses a service with permission control, the called contract will automatically call the permission management contract to check whether the address is allowed for invocation. Only addresses in the whitelist can access the service successfully.
- Maintenance of administrators' multi-signature address. When an address in the whitelist does not comply with the InterFi rules or do evil, the administrator has the right to initiate an emergency plan to temporarily remove the address from the whitelist. The InterFi DAO then decides to remove the address from the whitelist or reduce its weight.

6.2 Project Parties' Permission Management

InterFi provides unified and configurable permission management for project parties, so the latter can configure and change the permission just by calling the provided interface. In this way, permission management can be carried out with ease, including permission settings for other project parties as well as for users. For instance, the restriction can be put on the use of certain services to certain applications.

7 Conclusion

InterFi Interoperable Protocol provides service interface standardization, service registration, and permission management, as well as some other basic services, making it easier for applications to communicate with each other, and accelerating the development of DeFi. InterFi brings three key innovations to DeFi:

- Standardized DeFi application interface, making DeFi as a service, and allowing applications to communicate more conveniently and efficiently.
- New way of funds interaction, through reducing the transfer cost of funds and the separation of use rights and property rights, thus creating a more efficient capital market.
- Building on-chain credit, based on which applications can build credit-related DeFi applications.

In the future, we will open and provide more basic services to make the highway of DeFi more convenient and smoother.

Appendix

Each evaluation index will be segmented according to the quality of user behavior, with the score from low to high representing from poor to excellent.

Category	Evaluation Index	Credit Score
Economic Activities 300	Count of engagement in the ecosystem in the last week	0~20
	Amount of engagement in the ecosystem in the last week	0~20
	Count of engagement in the ecosystem in the last month	0~20
	Amount of engagement in the ecosystem in the last month	0~20
	Count of engagement in the ecosystem in the last three months	0~20
	Amount of engagement in the ecosystem in the last three months	0~60
	Total platform contribution	0~100
	Number of apps participated in the last three months	0~40
Debt Burden 300	Total loan amount in the last week	20~0
	Total loan amount in the last month	30~0
	Total loan amount in the last three months	40~0
	Total amount of historical loans	60~0
	Total repayment amount in the last week	20~0
	Total repayment amount in the last month	30~0
	Total repayment amount in the last three months	40~0
	Total amount of historical repayments	60~0
Performance Capacity 300	Total number of defaults in the last week	10~0
	Total amount of defaults in the last week	10~0
	Total number of defaults in the last month	10~0
	Total amount of defaults in the last month	10~0
	Total number of defaults in the last three months	10~0
	Total amount of defaults in the last three months	20~0
	Total number of historical defaults	60~0
	Total amount of historical defaults	80~0
	Average daily balance of account in the last week	0~30

	Average daily balance of account in the last month	0~30
	Average daily balance of account in the last three months	0~30
External Identity 70	Credit status in other ID systems	0~70
Social Networking 30	The influence index of the account's social networking evaluated through the algorithm based on the transaction-related accounts	0~30