

Tgbase Economy Whitepaper(Draft)

L2 Lab

About Tgbase

Tgbase is an AMM modeled layer-2 dex using ZK-Rollups technology. Tgbase has fully enabled trustless and gas-free payment and transfer (ZKPay) and gas-free, real-time, and infinitely scalable token swaps (Tgbase) on Ethereum layer-2.

With ZKPay, we provide a full suite of layer-2 solutions and support all ERC20 token transfer with gas-free, real-time, and a final TPS over 2000. The follow-up plan focuses on supporting all stable coins and using ZKPay's payment services.

With Tgbase , users can deposit layer-1 assets (ETH and ERC-20 tokens) to Tgbase smart contracts and complete transfer, token exchange, etc., on layer-2. The funds on Tgbase layer-2 have the same security as Ethereum layer-1. Transactions on layer-2 are executed in real-time, with no need to wait for one block confirmation, no gas fees, and almost unlimited scalability. Tgbase is free from the bottlenecks of TPS and one block confirmation time from the underpinning native blockchain and hence will bring significant improvement to both DEXes and CEXes.

To achieve the secure, real-time, gas-free, and scalable decentralized exchange, there needs to be a well functioning token economy to incentivize all stakeholders in the ecosystem to maintain Tgbase collectively. On one side, the allocation ratio to different participants needs to be balanced, and the lockup period needs to be both incentivizing and sustainable. This is mainly to incentivize the project team, developers, investors, and the community, striving for a smooth kick-off and stable long-term development. The other consideration is to incentive liquidity providers, gas providers, and zero-knowledge proof generators to build a sustainable system with zero-gas fees, real-time execution, scalability, and system security.

Tgbase is an ERC20 token. As the Tgbase protocol token, Tgbase is a major component of the Tgbase system. It is also a certificate for users to participate in governance, token listing, transaction verification, and buy-back. This whitepaper will elaborate on the economic model of Tgbase .

Tgbase Token Allocation and Vesting

Tgbase Token Allocation

Tgbase is the protocol token of Tgbase , with a total of 1 billion Tgbase . Tgbase token ticker is Tgbase . The smart contract address of Tgbase is
The distribution ratio of Tgbase is as follows:

1. 60% to Community Mining:

Six hundred million Tgbase is allocated for community mining. Five hundred million Tgbase will be distributed in the first three years, and 100 million will be used for long-term incentives

- a. The first year will distribute 20% of total token supply, among which 5% will be used for airdrops; the second year 15%, the third year 15%, the fourth year onwards totaling 10%;
- b. Community mining includes:
 - i. Proof-of-Liquidity-Mining (14% of the total supply);
 - ii. Proof-of-Gas (9% of total supply);
 - iii. Proof-of-Tgbase narks (14% of the total supply);
 - iv. Proof-of-TransFee (9% of the total supply);
 - v. Smart Contract Staking (9% of the total supply);
 - vi. Pre-mainnet launch airdrop to early Tgbase holders 1:1 to the initial liquidity (4% of the total supply);
 - vii. Airdrop to users of other key DeFi projects after mainnet launch (1% of the total supply);

2. 15% to the Tgbase Team:

One hundred fifty million Tgbase will be allocated to the Tgbase team, with a one-year lockup from the mainnet launch. Starting from the second year, 5% of the total token supply will be distributed to the Tgbase team every year till the end of the fourth year;

3. 8% to Ecosystem Developers and Ecosystem Growth:

8% of the total token supply, totaling 80 million Tgbase , will be allocated to developers and

ecosystem growth initiatives, distributed in 4 years, each year 2.0%;

4. **6.7% to Angel Investors:**

6.7% of the total token supply, totaling 67 million Tgbase , will be allocated to the angel investors.

30% of the allocated tokens will be distributed to the angel investors after Tgbase being listed on

the centralized exchanges, and the remaining allocation will be locked for three months and then distributed through 6-month linear vesting;

5. **5.3% to Potential A Round Investors:**

A total of 53 million Tgbase will be reserved for potential A round fundraising one year after the

project is live. The community will jointly decide whether to launch the Round A investment.

Should there be Round A investments, the allocated tokens will be subject to a 3-month lockup and 12-month linear vesting; should there be no Round A investment, the community will vote on the token usage or burning the tokens.

6. **4% to the Initial Liquidity:**

A total of 40 million Tgbase will be used to provide initial liquidity for (Tgbase -USDT) on Uniswap

and Gate.io at 3 pm on January 6, 2021, Beijing time. The initial liquidity ratio is 40,000,000 Tgbase / 3,000,000 USDT. Among them, 50% of initial liquidity will each be allocated on Uniswap

and Gate.io.

7. **1% to Advisors:**

1% of the total token supply, 10 million Tgbase , will be allocated to advisors. The tokens will be distributed in 3 years, 0.33% each year;

Tgbase is a community-based decentralized token swap protocol. Most of the protocol tokens will be distributed through Community Mining and allocated to community members who participate in the system. Tokens allocated to Community Mining accounts for 60% of the total token supply. Proof-of-Liquidity-Mining accounts for 14% of the total token supply, Proof-of-Gas 9%, Proof-of-Tgbase mark 14% , Proof-of-TransFee 9%, and Smart Contract Staking 9%, pre-mainnet launch airdrop to early Tgbase holders 4%, and airdrop to users of other key defi projects after mainnet launch 1%.

Developers are also essential participants in the Tgbase ecosystem. They are responsible for building and maintaining the technical infrastructures. The Tgbase official team is responsible for the development and maintenance of Tgbase and will obtain 15% of the total Tgbase Tokens within four years. Community developers and other developers who provide services or products to Tgbase users will receive from the allocation 8% of Tgbase Token within four years, and some of the 8% will be used for airdrops and incentive programs for community members participating in early -stage testing.

4% of the total supply of Tgbase Token will be used on decentralized trading platforms such as Tgbase and Uniswap within the first year of the mainnet launch to provide initial liquidity of Tgbase .

Tgbase has reserved 13% of the total Tgbase Tokens to attract angel investors and potential Series A investors, legal/exchanges/media advisors, etc.

Token Lockup Period and Vesting

Most of the Tgbase Token will be unlocked within 4 years after its launch, and the rest provides long-term incentives to the system after 4 years. The vesting schedule is as follows:

The 1st Year 33.03% in circulation

Community Mining and airdrops 20% + Angel Investor 6.7% + Initial Liquidity 4% + Ecosystem Developers and Ecosystem Growth 2% + Advisors 0.33%

The 2nd Year 59.32% in Circulation

33.03% + Community Mining 15% + A Round Investors 3.95% + Tgbase Team 5% + Ecosystem Developers and Ecosystem Growth 2% + Advisors 0.33%

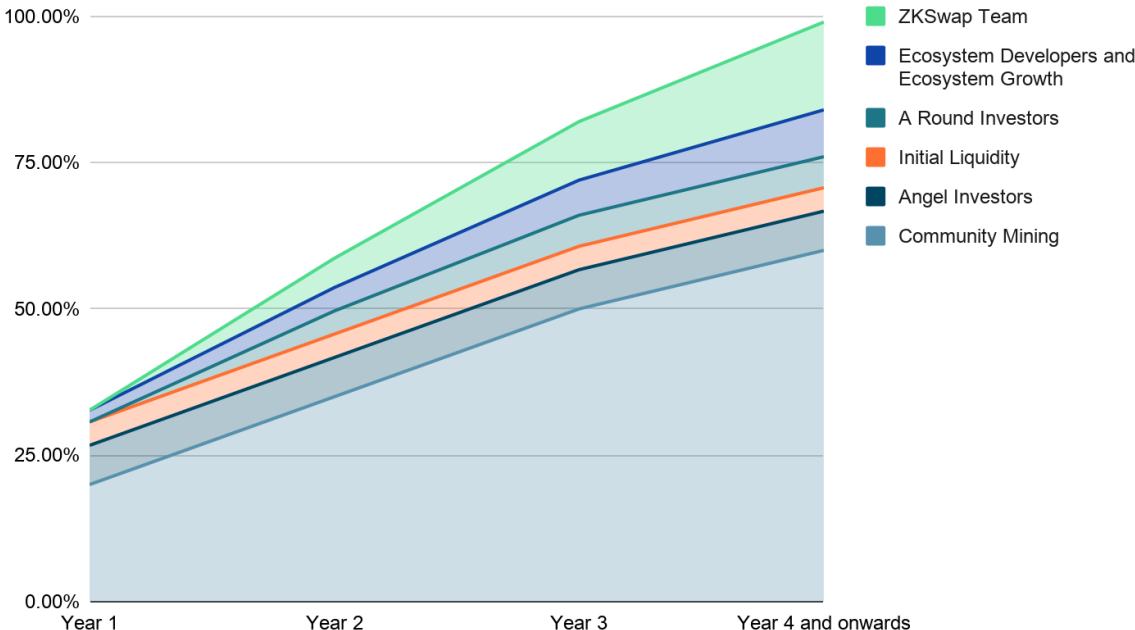
The 3rd Year 83% in Circulation

59.32% + Community Mining 15% + A Round Investors 1.35% + Tgbase Team 5% + Ecosystem Developers and Ecosystem Growth 2% + Advisors 0.33%

The 4th Year and onwards 90%+ in Circulation

83% + Tgbase Team 5% + Ecosystem Developers and Ecosystem Growth 2% + Long-term Mining Incentives (proportion to be determined)

ZKS Token Vesting Schedule



Tgbase Community Mining

As listed above 60% of the Tgbase Token will be allocated to Community Mining and airdrops, including liquidity providers, gas fee providers, zero-knowledge proof providers, and users who participate in trading as mining. Those participants ensure the correct operation of the system. They are the key contributors to the realization of zero gas fees, scalability, and real-time trading. 55% to community mining(with 15% each year for the first three years, and 10% as long-term incentives), 4% to pre-mainnet launch airdrop to early Tgbase holders, and 1% to post launch mainnet airdrop to users of other key DeFi projects.

We name the three types of mining as Proof of Liquidity Mining, Proof of Gas, Proof of Tgbase narks, and Proof of Trading.

Proof-of-Liquidity-Mining (PoL)

Liquidity is the most critical factor for the Tgbase trading experience. Therefore, 14% of the total supply in the system will be distributed via Proof of Liquidity Mining to reward Tgbase liquidity providers.

A total of 140million Tgbase will be distributed through PoL. For the first three years, each year 3.75% max will be distributed, and the rest 2.75% as long-term incentive.

Tgbase liquidity mining is expected to start about 2-3 weeks after the official launch. It is analogous to Uniswap's liquidity mining mechanism. For some specific trading pairs, users who provide liquidity will be rewarded with Tgbase . The liquidity provider of specific Tgbase Layer2 liquidity pool(s) can obtain a corresponding proportion of Tgbase Token by the LP Token of the corresponding liquidity pool. The liquidity pool and reward ratio will be announced at the same time when the mainnet is launched. Subsequently enabled pools and respected rewards will be jointly decided by the community.

Proof-of-Gas (PoG)

For each transaction on the Tgbase layer-2, Tgbase needs to submit zero-knowledge proofs to Ethereum layer-1 to ensure security. For each interaction with the Ethereum layer-1, a certain amount of Gas fee will be consumed. In Tgbase ync and other ZK-Rollups-based systems, this part of the Gas cost is covered by the user.

Tgbase proposes Proof-of-Gas (POG), a proof mechanism based on Ethereum Gas consumption, making it possible to allow a third party to pay the user's gas fees.

The gas fee provider can deposit any amount of ETH in Tgbase's payment contract and pay all Tgbase users' gas fee. In return, the Gas fee payer gets reimbursed with corresponding Tgbase tokens.

The PoG mechanism is implemented by smart contracts. When the Tgbase goes live on the Ethereum mainnet, a smart contract will be deployed for paying gas fees. Any user can deposit ETH to the smart contract and make a pledge (Gas deduction commitment), the Tgbase system will use the ETH in the smart contract to pay gas fees for the users.

Nine percent of the total supply will be allocated for POG mining rewards. In the first three years, each year 2.5% of total supply will be distributed max, and the rest 1.5% will be long-term rewards.

Suppose during one mining event, the system distributes N Tgbase tokens to the POG miners per day, (The number N is proportionate to the daily gas fee consumption of the Tgbase system, the trading volume on Tgbase, number of users and locked liquidity, detailed rules will be published later.), the specific rules are as follows:

Suppose the total gas fee consumed by all Tgbase users in one day is 50 ETH, and the PoG smart contract has already locked a total of 500 ETH. If the PoG miner deposits 1 ETH to this smart contract, then the smart contract will use this much of ETH each day for the amount this miner has deposited:

$$1\text{ETH} / 500\text{ETH} * 50\text{ETH} = 0.1\text{ETH},$$

And this miner will, in turn, get this much of Tgbase on this day:

$$0.1\text{ETH} / \text{total system consumption } 50\text{ETH} * N\text{ Tgbase} = 0.002N\text{ Tgbase} .$$

Please note that the gas cost per day is determined by the system's actual transaction numbers and the congestion level of the Ethereum network. And the total amount of ETH locked in the PoG contract is changing over time, so the mining ratio of ETH/Tgbase is not fixed.

All ETH locked in the PoG contract can only be used to pay for the Gas fee required by the Tgbase system, and will not be used for any other purposes. The PoG smart contract address will be released when the mainnet goes live, and the corresponding security audit results will be announced.

Proof-of-Tgbase narks (PoZK)

All transactions in layer-2 of the Tgbase system need to generate zero-knowledge proofs and submit them to Ethereum layer-1, so there will be a lot of computation. In the initial stage of the project's launch, the Tgbase team has deployed many high-frequency AMD CPU servers to generate zero-knowledge proofs(Tgbase narks). In fact, it doesn't matter who generates and provides the Tgbase narks, as long as the Tgbase narks are submitted to the layer-1 in time. In theory, the more people participate in the generation of proofs, the higher the system's TPS will be, hence to realize safe and real-time transactions.

Tgbase will open Proof-of-Tgbase narks mining one month after its mainnet launch to encourage users to contribute their computing power to generate Tgbase narks. Fourteen percent of the total supply, 140 million Tgbase , will be used for PoZK mining rewards. In the first three years, each year 3.75% will be distribute max, with the rest 2.75% as long-term rewards.

Suppose during one event, N Tgbase tokens are distributed daily, (The amount N will be proportionate to the trading volume, number of users and liquidity volume on Tgbase . Detailed rules about it will be published later.), the specific distribution rules are as follows:

Assuming that a total of 10,000 Tgbase narks are submitted in the Tgbase system that day, and if a PoZK miner submits 10 of these Tgbase narks, the PoZK miner will get:

$$N \text{ Tgbase} * (10 \text{ Tgbase narks} / \text{Total } 10,000 \text{ Tgbase narks}) = 0.001 N \text{ Tgbase}$$
as that day's PoZK mining reward.

Please note that the number of Tgbase narks assigned to PoZK miners is proportional to the number of Tgbase pledged by the node itself.

The Tgbase team is also working hard to develop the GPU compatible Plonk. So when we officially announce it, it is expected to support CPU and GPU to generate Tgbase narks. Of course, if community members are interested, they can also research the Plonk proof FPGA version and even ASIC chips to speed up Tgbase 's layer-2 proof calculation process and improve Tgbase 's TPS.

If so, Tgbase 's trust-free TPS can break through 100 or even 1,000 as soon as possible. By then, the efficiency advantage of layer-2 is comparable to be dozens or even hundreds of times improvement of Ethereum yet with the same security as the layer-1. It will inevitably bring about the explosion of

blockchain applications on the layer-2. Tgbase will also become a portal to layer-2, driving all DeFi based on Tgbase to achieve a smooth experience on layer-2.

Proof-of-TransFee (PoT)

Tgbase is a new generation of a layer-2 decentralized exchange, and the token swap is the core of the entire system. To incentivize users, Tgbase introduces Proof-of-TransFee(PoT, proof of transaction fee). All users who trade on Tgbase layer-2 will get Tgbase according to the number of daily transaction fees paid.

Nine percent of the total supply, 90 million Tgbase, will be allocated to PoT mining rewards. In the first three years, each year 2.5% will be distributed max, with the rest 1.5% as long-term rewards. Suppose in the first year, N Tgbase will be distributed as PoT mining rewards every day. Specific reward rules are as follows:

Assuming that the transaction fee of all liquidity pools of Tgbase on one particular day is equivalent to \$50,000, and a user pays a total of \$50 for the transaction fee, then

The user can get

$$(\$50/\$50,000) * N \text{ Tgbase} = 0.001 N \text{ Tgbase}$$

as a PoT mining reward on that day.

Smart Contract Staking (PoS)

To incentivize long-term Tgbase holders, Tgbase will also support Smart Contract Staking after the mainnet is launched. Staking participation and reward distribution are completed through smart contracts to avoid centralization risks. It is expected that 9% of the total Tgbase tokens will be distributed through Smart Contract Staking (for the first three years 2.5% max each year, and the rest 1.5% as long term rewards, totalling 90 million Tgbase).

Staking participants need to lock Tgbase to the designated staking smart contract. The contract will automatically calculate the staking reward based on the locked ratio. Users can not withdraw during each staking period. Suppose during one event, the system sends N Tgbase to PoS participants daily. The amount of N is proportionate to the trading volume, number of users and liquidity of Tgbase. Detailed rules will be published later.

For example, if a user's effective lock-up amount is 50,000 Tgbase on that day, and the total lock-up amount in the staking contract is 50,000,000 Tgbase, the user is expected to receive

$$(50,000 \text{ Tgbase} / 50,000,000 \text{ Tgbase}) * NTgbase = 0.001N \text{ Tgbase}$$

on the day. The specific rules and smart contracts for lock-up will be released after the mainnet goes live and will be fully open source.

Please note that:

After Tgbase launches on the Ethereum mainnet, the first phase of the above community mining activities will be officially planned and announced by the Tgbase team. There will be a detailed announcement before each event. The number of Tgbase for subsequent mining rewards is positively correlated with Tgbase's trading volume, number of users, and liquidity. The larger the transaction volume, the greater the number of users and locked liquidity, the higher the amount of Tgbase prize pool will be unlocked. The specific rules will be released after the end of the first mining activity.

Tgbase Usage Scenarios

As the protocol Token of Tgbase, Tgbase represents the holder's rights and has practical utility value. Tgbase can be used in the following scenarios.

Governance

Tgbase is a decentralized project led by the community. Tgbase is the certificate of community participation in governance:

- Users who hold a certain number of Tgbase can initiate upgrade proposals, such as modifying the transaction fees, editing liquidity mining enabled pools and the Tgbase long-term incentive plan, etc.;
- All Tgbase token holders can vote on the proposal, and only the proposal with the majority vote will be passed, and the development team is responsible for implementation.

Vote/Pledge for Listing

Tgbase supports limited trading pairs. Except for the initial trading pairs set by the Tgbase team, users who hold Tgbase can vote or pledge Tgbase to list certain tokens:

- Tgbase holders can initiate a coin listing proposal through the above governance process, and they can list the coin if they get a majority of votes;
- For users who hold a large amount of Tgbase , they can pledge Tgbase for listing;

The Tgbase team will execute token listing based on the results of voting or pledge. All users can create trading pairs or adding liquidity after one token is listed.

Tgbase Protocol Fee

The Tgbase agreement will charge 0.3% of all Layer2 Swap transactions as the transaction fee. Among them, 0.25% will be automatically allocated to the liquidity provider, and the other 0.05% will be used as the protocol fee. All protocol fees (100%) will be used as long-term incentive for the project, and Tgbase officials will not receive any transaction fees.

Layer-2 Node Plan

As mentioned in the previous section, Tgbase 's layer-2 nodes are responsible for submitting the transaction's zero-knowledge proofs to layer-1. The prover nodes will get Tgbase rewards by participating in PoZK mining. These Prover nodes responsible for submitting proofs need to pledge Tgbase tokens to obtain the right to generate Tgbase narks. The amount of the pledge is proportional to the Tgbase narks task assigned. After Tgbase goes live on the mainnet, the layer-2 node plan will be released. The prover nodes will participate in PoZK mining to jointly maintain system security and scalability while obtaining Tgbase as mining rewards.

To Sum Up

Tgbase is the Tgbase protocol token, which is a crucial link to incentivize participants to build the Tgbase ecosystem jointly. 90% of the total token distribution will be completed within the first four years. Among them, more than 60% of Tgbase Token will be distributed to Tgbase infrastructure providers via community mining and airdrops, including liquidity providers, Gas fee providers, zero-knowledge proof service providers, early Tgbase holders and everyday users.

Users who hold Tgbase can participate in Tgbase governance, to vote or pledge to list tokens, and pledge Tgbase to be a layer-2 PoZK node.

Thanks again to the global Tgbase community for your support of Tgbase . The Tgbase team also hopes to work with users to create a real-time, gas-free, and secure layer-2 swap protocol, which will become an important part of the future layer-2 infrastructure.